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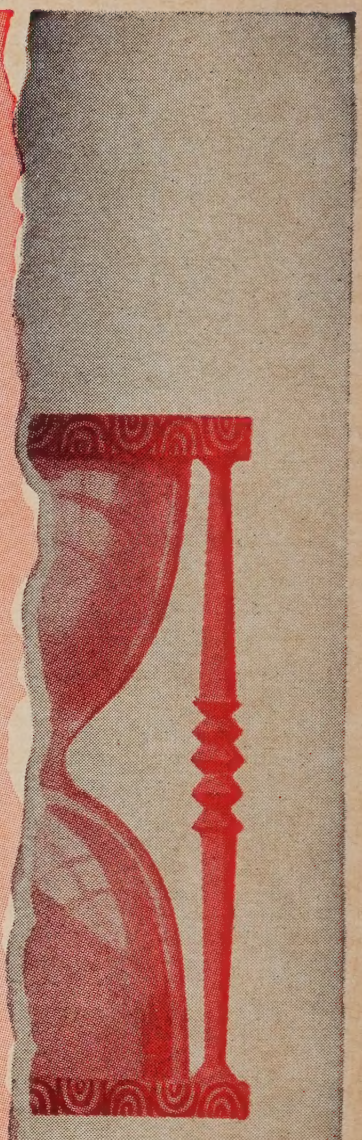

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Observation of children's teeth as a diagnostic aid: 1. Dentition in the assessment of development

W. M. Gibson, M.D., Vancouver, and J. M. Conchie,† D.D.S., Langley, British Columbia*

Physicians, dentists, and others concerned with child health need to be aware of certain measures of growth and development that will aid in the early detection of chronic disease states and growth failure. The impact of many crippling illnesses has been reduced by the practice of modern preventive medicine. This leaves the health professions responsible for the care of increasing numbers of children with chronic disability states. In these recording developmental measures can be of assistance in assessing treatment over a long period.[1] Height and weight measurements and skull circumference for the younger child are now documented in a longitudinal manner by the physician, much as temperature was once taken. When abnormal growth or deviation of growth through disease is suspected, our knowledge of the accurate

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*Assistant professor, Department of Paediatrics, University of British Columbia.

†Regional dental consultant, Fraser Valley Health Units. British Columbia Health Branch.

relationship between bony development at the wrist[2] or knee,[3] chronological age, and height-weight records leads us to take appropriate radiographs. The bone age is used to judge whether somatic and physiological maturity are synchronous and allows for prognostication of future growth likely to occur.

Why teeth have been so widely overlooked as an index of physiological maturity is difficult to explain. A number of impressive studies have reported measurements of time of eruption,[4] root formation,[5] cusp formation,[6] numbers of deciduous and permanent teeth[7] present in the mouth at various ages. These demonstrate that dental development is certainly closely related to the development of a child as a whole. The measure of maturity by the simple techniques of observation and radiography in the mouth is more productive than many complex laboratory techniques.

History. — Sporadic interest in the time of eruption of teeth has been noted for more than a hundred years. In the 1830's, when child labour laws were being debated in the British House of Commons, it was pointed out by one of the members that parents were exploiting their children by falsifying their age. It was suggested by the honourable member that by adopting the technique of horse traders, the teeth could be used as an accurate determinant of the age of the child.

Cattell[4] published in 1928 a monograph entitled "Dentition as a measure of maturity" in which he compared many milestones of development of the child with growth of their teeth. Within this monograph is reported the pioneer work of a number of investigators. Röse, in Germany, in 1908, studied tooth development in 41,000 children. Beik, also from Germany, observed in 1913 that "the dentition is the best single indicator of the stage of physical development — or physiological age." The studies of Matiegka of France in the same era established a fairly accurate index of physiological age on the basis of the numbers of erupted teeth. In America, the monograph records similar studies by Bean who stated: "The teeth are more convenient and more exact as a means of determining the physiological standard than stature, or weight, or the growth of bones, or secondary sexual characteristics, etc., and they may be of greater value than any other means that can be utilized. The teeth can be seen, counted and identified by almost any one after a little experience and they are either present or absent, therefore, very definite."

More recent publications have explored various factors which might influence the time of eruption and have presented numerous refinements, such as the rates of calcification of the crowns[6] and rates of root growth.[7] These investigations have all shown a positive correlation between dental development and other measures such as height and weight which should be regularly recorded for our patients.

The Tooth As a Vital Organ. — Teeth are derived from the same embryological cellular elements as hair, skin and nails. The various metabolic or pathological disturbances that might occur during the period of their formation can be reflected in both their morphological characteristics and rate of growth.

Each individual tooth passes through four successive periods of development in its life cycle.[8]

1. Growth. — Tooth formation commences at about the 50th day of gestation. Epithelial cells differentiate histologically during this process of multiplication to form the bell-shaped enamel organ. The inner layers of cells become the ameloblasts that form the enamel. The peripheral cellular layers become odontoblasts that are responsible for the formation of the dentine. The boundary of these two cellular layers, the future dentino-enamel junction, establishes the basic crown form. Enamel and dentine are laid down in incremental layers, that resemble rings of a tree.

2. Calcification. — The calcium salts are deposited in the matrix of the enamel

and dentine. The mineral structure of the root is established synchronously with the outward movement of the crown and its eruption into the oral cavity.

3. Eruption. — The breakthrough and appearance in the oral cavity.

4. Life Span. — When the tooth is in the mouth the coronal portion is gradually worn by attrition.

The various teeth of the dental arches are formed and calcified at different times. The crowns of all the deciduous teeth commence their calcification in utero. An indelible record in the tooth in the form of a neonatal line results from the disturbance of calcification around the time of birth. These lines are found in the crowns of all deciduous teeth and are normally seen only microscopically. Their accentuation varies with the degree of trauma, or difficulty of the subsequent adjustment at the time of birth. When the perinatal period has been difficult, for example when complicated by anoxia, the neonatal lines may be observed with the eye. Lines may occur on the enamel of teeth as the result of anoxia to the foetus in utero. Hence the position of lines on the tooth may be used to determine whether the trauma occurred prenatally or at the time of birth.

The formation of the first permanent molars and the central incisors is initiated during the first six months of life. There is a range of physiological variation in the time of formation as well as their subsequent calcification and eruption. By 2½ to three years all the permanent teeth, with the exception of the third molars, are in an early stage of growth. The crown formation of teeth is an orderly process that commences mid-way in utero and continues throughout childhood. The process is complete upon the eruption of the third molars, which occurs during the latter part of adolescence.

During their life span the teeth do not remain static. Studies in which radioautographic techniques have been utilized have demonstrated the fact that mineral ions pass continually into and out of all hard tissues of the body.[9]

Means of assessment

Deciduous Teeth. — When examining a child, if the numbers of deciduous teeth erupted are noted in the medical record a useful reference of development is obtained. The routine "well baby" examinations are designed to focus early attention upon developmental problems and are too frequently terminated with completion of immunization procedures. One technique is to count the number of teeth erupted in the maxilla and the number erupted in the mandible and to mark this as a fraction (6/7). Another means of recording the individual teeth present at any time is by use of letters for deciduous teeth and arabic numerals for permanent teeth in a quadrant fraction, e.g.

$$\frac{\text{CBA} \mid \text{ABC}}{\text{DCBA} \mid \text{ABCD}}$$

By observing the number of erupted teeth, attention will also be drawn to enamel defects. The causes of enamel hypoplasia are discussed in Part 2 of this review.

The rare problem of erupted teeth (lower deciduous incisors) in the newborn which are called *natal* teeth, or if erupting during the first thirty days *neonatal* teeth, has been recently reviewed by Gardiner.[10] Their incidence is reported as 1 in every 3,000 live births. Some children shed these teeth in the perinatal period, but the majority remain until 5½ to six years when they are exfoliated.

An atlas relating the time of eruption of deciduous teeth in percentiles with other measures of height, weight and bone age would be a helpful guide to dentists, physicians and others working with children. Such an atlas has not to our knowledge been published. Tables have been drawn up by Meredith[11] from studies of population groups in Boston, southern Ohio, Iowa, and New York, etc., showing the time of eruption in relation to age as percentiles for both sexes (Table 1). These studies indicate that teeth rarely erupt before the fourth month. The mean age of eruption of the first tooth is 7½ months.

TABLE 1 Number of erupted deciduous teeth at different ages. (Meredith, J. D. Res. 43:59, 1946.)

Age group		Number of teeth erupted at different ages								
Midpoint (months)	Range (months)	N	Minimum	Percentiles			Maximum	Means		
				25	50	75		Male	Female	Both sexes
Under 4 months		330	0	0	0	0	0			
5	4.5- 5.5	86	0	0	0	0	4	0.4	0.2	0.3
6	5.5- 6.5	95	0	0	0	2	6	0.8	0.6	0.7
7	6.5- 7.5	77	0	0	0	2	6	1.4	0.8	1.2
9	8.5- 9.5	73	0	1	2	4	9	3.2	2.8	3.0
12	11.5-12.5	56	0	4	6	8	17	6.6	5.8	6.2
15	14.5-15.5	66	3	7	9	12	16	10.2	8.2	9.2
18	16.5-19.5	124	4	12	13	16	18	12.8	13.2	13.1
21	19.5-22.5	119	4	14	16	16	20	15.6	15.4	15.5
24	22.5-25.5	110	8	16	16	18	20	16.5	16.7	16.6
30	28.5-31.5	70	12	18	20	20	20	19.0	19.0	19.0
Over 34 months		110	20	20	20	20	20	20.0	20.0	20.0

The preschool years is the period when early recognition of disability states is most helpful. Because of the availability of school-age children, there are numerous studies on dental development centered on the eruption of permanent teeth.[4,14,17,20] Comparable studies dealing with deciduous tooth eruption have been restricted by limited contact between physicians, dentists, and the preschool age child. Though limited, these studies have shown that both deciduous and permanent teeth erupt in a characteristic sequence. The usual order of the eruption of deciduous teeth is incisors, first molars, cuspids and second molars. The first tooth to erupt in about 95 per cent of individuals is a lower central incisor. A study of the eruption of deciduous teeth in monozygotic and dizygotic twins by Hatton[12] and the most careful work at the Fels Research Institute by Lewis and Garn[13] support the hypothesis that tooth formation is to a large extent gene-determined. The higher correlation of time of eruption is found, as might be expected, in monozygotic twins.

Any delay in dental eruption beyond two standard deviations for an age group should be regarded as a trigger to explore other factors of physiological maturation. Nutritional problems before birth and in the perinatal period, prematurity, and developmental diseases (ectodermal dysplasia, etc.) should be considered in children who are experiencing delayed eruption of deciduous teeth.

Permanent Teeth. — The eruption of permanent teeth, if observed and noted by a physician or dentist in his assessment of the preschool and school-age child, can provide accurate knowledge of development. A close tie between the pattern of tooth eruption and the skeletal maturation and height-weight gain is to be expected, since both are occurring as components of growth and development. The studies of earlier authors showed that the dentition could be used as a measure of physiological maturity.[4,14,17] Some well-devised observations have recently demonstrated in permanent teeth the correlation that exists between skeletal and dental maturity.[5,15,16,7,13] Premature extraction of deciduous teeth may introduce slight variables in eruption of permanent teeth. With improved dental care this becomes less significant as a source of error.

FIGURE 1 The correlation of bone age, dental age and dental eruption is shown in each child. These measures also demonstrate the normal variation in the same chronological age. Repeat measures make an accurate prediction of the child's growth pattern.

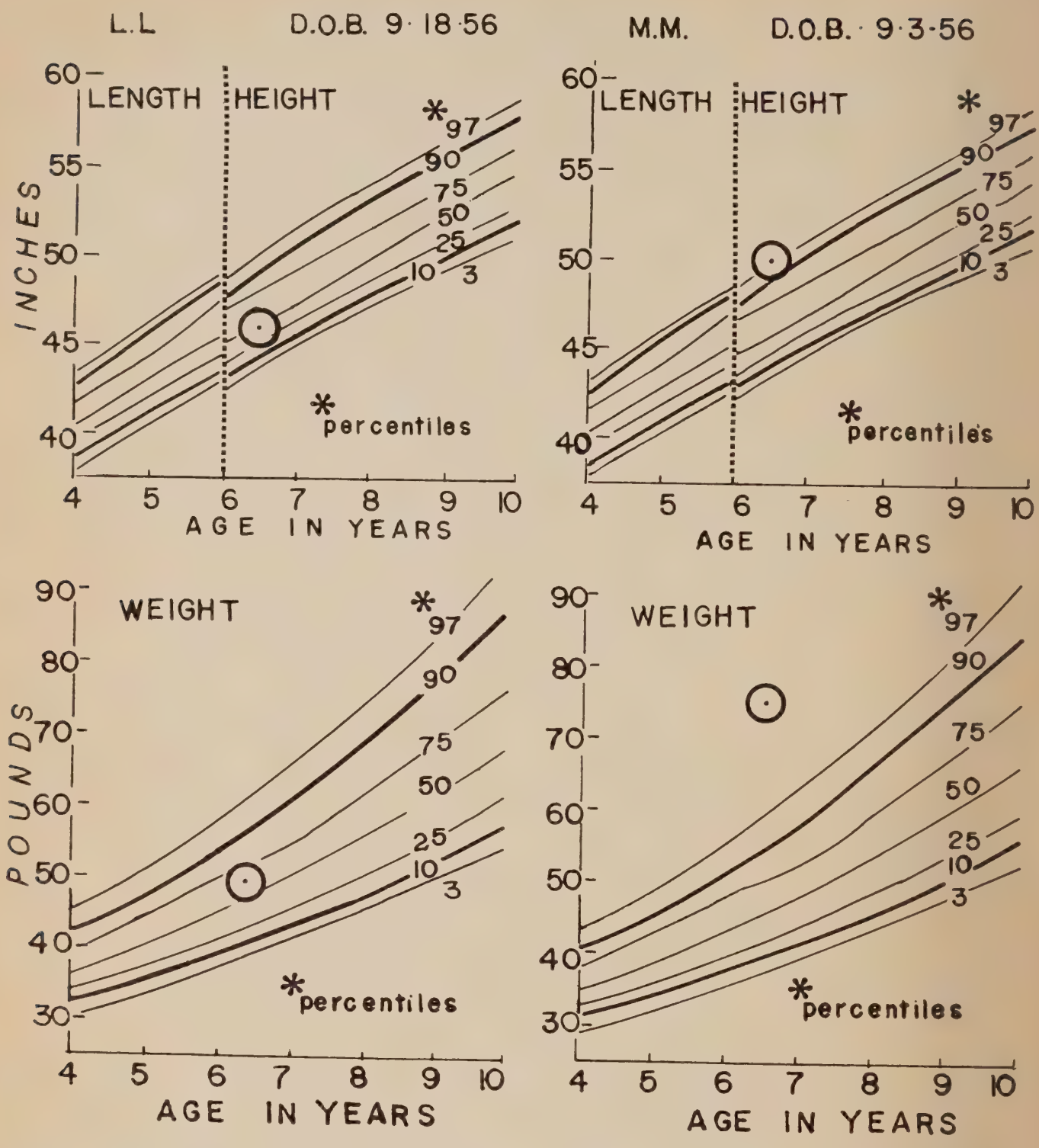

FIGURE 2 Difference in somatic growth plotted on the Anthropometric Chart of the Children's Medical Centre, Boston.[1]

To illustrate the practicality of the hypothesis of dental eruption as an index of development, a random selection was made of two Grade 1 pupils. The teacher chose one boy from amongst the larger children and the other from the smaller. The birth dates of these children by coincidence fell within 15 days of each other. Figures 1 and 2 show the various measurements made on these boys. The number of erupted permanent teeth and crown development, as portrayed in lateral oblique jaw radiographs, closely correlate in each case with bone age at

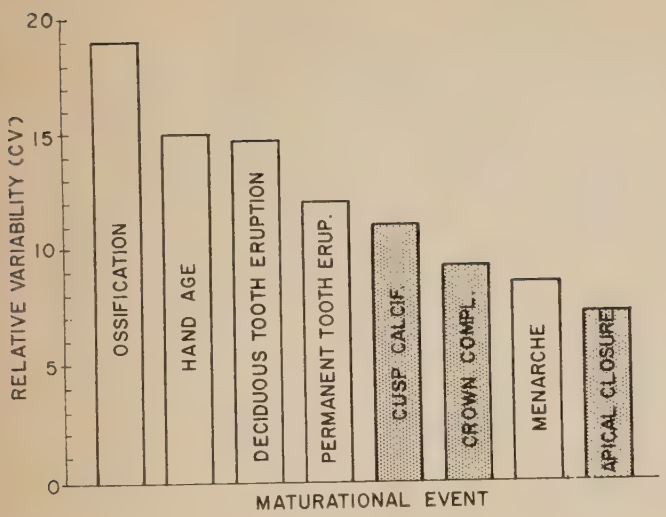

FIGURE 3 Variability of tooth eruption to other measures of maturity. (Lewis and Garn, Angle Orthodont. 30:74, 1960.)

the wrist and height and weight. In the larger boy (M.M.), whose weight is above the 97th percentile and height on the 90th percentile, the permanent first molars of both arches and the mandibular central incisors are erupted (2/4), bone age at the wrist is seven years with the left lateral oblique jaw radiograph indicating a dental age of 6½ to 7 years. The smaller boy (L.L.) has a weight and height both on the 25th percentile; there are no permanent teeth erupted (0/0), the bone age at the wrist indicates a skeletal age of five years and the left lateral oblique jaw radiograph shows a dental age of 5½ to 6 years. Thus these boys with comparable chronological ages demonstrate the normal spectrum of developmental measurements and the high degree of correlation of somatic, dental and skeletal growth. Repeated measurements of dental maturity allow as accurate a prediction of the child's future pattern of growth as other indices.

The degree of variability in time of tooth eruption when related to "bone age" has greater latitude than lateral jaw radiographs used to assess cusp formation, crown completion and root development[18] of human molars. Perhaps some confusion has arisen by the need of the orthodontist to predict permanent tooth emergence in order to initiate treatment. The physician, on the other hand, is desirous of an index that will alert him to significant deviations of development by noting numbers of erupted teeth. On a population of 275 children followed longitudinally, Lewis and Garn[13] compared eight different measurements commonly used as indices of maturation. The relative variability (coefficient of variability) of permanent tooth eruption compared to the others on the basis of chronological age is shown in Figure 3. (Ossification refers to the appearance of 36 ossification centres — Fels Research Institute.) The information obtained from the number of hand-wrist ossification centres present at a given age and from a single oblique jaw radiograph has been shown to be of equal value in predicting future development.[19] Another study on older children found a high positive correlation between the degree of calcification of the mandibular third molar and the skeletal and chronological age.[16] Lauterstein[5] showed a close association between root age of the first permanent molar and bone age, and also between root age and number of erupted permanent teeth.

The mean numbers of erupted permanent teeth in relation to chronological age and skeletal maturation as reported by Sutow, Terasaki and Ohwada,[15] demonstrated significant sex differences. The girls at each age level had more erupted permanent teeth than boys of the same age. Other authors[18,13] support this variation, and Fanning[20] in the careful collection of longitudinal data has worked out percentile tables with sex difference based on tooth formation recorded by lateral jaw radiographs. The widely used "Children's Medical Centre, Boston — Anthropometric Chart" by H. C. Stuart, takes into account the predictable deviation of the measurements of boys' and girls' height and weight and records this data on separate grids. This study also demonstrated that the skeletally advanced children have a greater number of erupted teeth than the skeletally below average children.

Indices of tooth formation (obtained by lateral jaw radiographs), as represented by the three shaded areas, are shown to be the most accurate index of physiological age (Figure 3). Deciduous and permanent tooth eruption patterns recorded over a number of years are as useful as repeated bone age at the wrist as measures of maturity. The orthodontist and paedodontist can thereby be expected to focus more interest on time of tooth emergence as predicted by the study of root development.[7] The degree of correlation between dental age and skeletal age[21] is such that the use of cephalometric radiographs and the measure of the total amount of calcification of the permanent dentition of one quadrant of the jaw provides data as accurate and useful as Todd's *Atlas of Skeletal Maturation.*

Summary

How to use the pattern of eruption of deciduous and permanent teeth as an indicator of development is demonstrated by a review of the relevant literature. If the physician makes a habit of observing the dentition, noting the time of dental eruption, along with keeping height and weight records, a valuable diagnostic sign is brought to his attention and will stimulate study of children with developmental problems.

Since the dentist will know the age of the child, his observation of eruption pattern and calcification of teeth allows him to become aware of developmental problems such as dental immaturity and assist the family by alerting their physician.

This article demonstrates the need of an atlas of dental development for use as an index of maturity.

Résumé

La littérature dentaire mentionne comment on peut, en observant la façon dont les dents primaires et les dents permanentes se placent sur l'arcade, prévoir la croissance des maxillaires. Le médecin, s'il prend l'habitude de noter la dentition et l'époque d'éruption de chacune des dents et de coordonner ses observations avec le poids et la taille des enfants, pourra tirer des données intéressantes au sujet du problème de la croissance de ces enfants.

Le dentiste, connaissant l'âge de l'enfant, peut se rendre compte en observant la façon dont les dents se calcifient et font leur éruption, de défauts possibles de croissance, tels que des retards dans la formation des dents et dans le développement des maxillaires et en avertir les parents pour qu'ils en parlent à leur médecin.

Cet article expose la nécessité d'établir un atlas de la croissance dentaire pour s'en servir comme index de maturation.

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715 West 12th Avenue

The Edmonton fluoridation survey

C. R. Castaldi, D.D.S., M.S.D.,*

Edmonton, Alberta

Although the effectiveness of naturally occurring water-borne fluorides in reducing dental caries was established over a quarter of a century ago, the world's first trials with controlled (artificial) fluoridation did not begin until after World War II. Since that time studies in Canada[1] and the United States [2,3] and more recently those in the Netherlands[4] and England[5] have conclusively proven the effectiveness and safety of controlled fluoridation.

Despite the overwhelming evidence favouring fluoridation the public has not been quick to adopt this health measure. By January 1, 1963, only about one out of every four people in the United States was using fluoridated water while in Canada the figure was only about one in fifteen. In both countries fluoridation can be introduced either by decision of a municipal council or by public referendum. In Canada wide variation in fluoridation legislation exists. Newfoundland, Prince Edward Island and Quebec have no specific legislation dealing with fluoridation. In Nova Scotia and Manitoba decision is made by municipal councils. In Saskatchewan decision may be made by local councils or by voting in which a simple majority decides. In Ontario local councils can introduce fluoridation unless 10 per cent of the eligible voters petition for a plebiscite which must then be passed with a simple majority. In British Columbia 60 per cent of the voters must approve the measure. The act dealing with fluoridation in Alberta was passed in 1956. Sixty-six and two-thirds per cent of the voters must approve fluoridation and there must be a two-year waiting period between successive referenda. In 1957 the first fluoridation plebiscites were held

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*Professor of Dentistry for Children, University of Alberta.

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in Alberta. Most of these were held in conjunction with civic elections. Since all but a few were held on the same day this excludes the possibility of one voting result affecting another. Voting results varied greatly and ranged from a 63 per cent vote against fluoridation in Lethbridge to a 92 per cent vote in favour in Fairview, a small community in northern Alberta. In Edmonton 64.6 per cent of the voters favoured fluoridation. Such a wide variation in voting results suggested the need for information about the knowledge, attitudes, and opinions of the public about fluoridation, dental health and related subjects. In order to broaden the scope of such a study the joint efforts of several disciplines seemed necessary. Medical and dental public health officers and the Department of Sociology of the University of Alberta combined efforts with the Faculty of Dentistry in a mutual project.

No extensive studies of the sociological aspects of fluoridation in Canada have been reported to date. In 1958 pilot studies were carried out in Alberta involving a group of young parents in the health units of Camrose (.01-.05 ppm F) and Wetaskiwin (1.2-2.0 ppm F) and a group of senior citizens in Edmonton (.03-.06 ppm F). These studies were quite preliminary in nature. They revealed that whereas almost all the young parents and senior citizens had heard the term "fluoridation" only half of both groups knew what fluoridation was, even though a vague answer such as "it helps teeth" was accepted as knowledge of fluoridation. Despite rather inadequate knowledge of the subject, 78 per cent of the young parents favoured fluoridation, 20 per cent had no opinion on the subject, while less than 1 per cent were opposed to fluoridation but only because they felt inadequately informed about the subject. The senior citizens were more skeptical about fluoridation since only 40 per cent favoured the measure, 36 per cent were opposed, while 24 per cent were undecided about the matter.

Because of this preliminary work continued support by research grants from the Department of Health and Welfare made possible more comprehensive studies of fluoridation, dental health and related subjects in the Edmonton area. These are described in subsequent articles in this series.

Résumé

Des plébiscites sur la fluoration tenus depuis 1958 dans différentes régions de l'Alberta ont donné des résultats contradictoires: par exemple, à Lethbridge, les citoyens ont voté dans une proportion de 63 pour cent contre cette mesure, tandis qu'à Fairview, une petite ville du nord de la province, on s'est prononcé en faveur de la fluoration par un vote de quatre-vingt-treize pour cent. A Edmonton, en 1957, 64.7 pour cent des voteurs ont favorisé cette mesure de santé publique.

Les lois d'Alberta exigent, pour que cette mesure devienne en force, que 66 2/3 pour cent des voteurs la désirent et qu'il y ait un intervalle de deux ans entre des referendums successifs. Des divergences aussi considérables indiquent que la population a besoin d'être renseignée davantage sur la fluoration, l'hygiène dentaire et d'autres questions semblables. En étant plus éduquée, la population modifiera son attitude et à sa réaction à ce sujet. Des membres du personnel enseignant de la faculté de chirurgie dentaire et du département de sociologie de l'Université d'Alberta, en collaboration avec des médecins et des dentistes s'occupant d'hygiène publique, ont commencé à faire des études sur les moyens de renseigner adéquatement la population. Ces moyens seront exposés dans d'autres articles de la même série.

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Faculty of Dentistry,
University of Alberta

Sociological aspects of fluoridation

Esther S. Hirabayashi, M.A., and*

G. K. Hirabayashi,† Ph.D.,

Edmonton, Alberta

Because the public has become involved in decision-making on fluoridation and because the introduction of fluoridation in some communities has resulted in considerable argument with strong feeling for and against the matter the social scientist has begun to take an interest in the subject. To date, however, the research findings of the social scientist have revealed conflicting data.

In a study of Fairfield, California, Taylor et al found that people between the ages of twenty-one and thirty, those with high education, and women were inclined to favour fluoridation. One qualification to the high social status of "pro" voters was that white collar respondents were least likely of all occupational groups to favour fluoridation. The highest "anti" groups were in the age range of forty-one to fifty years.[1] Simmel supported these findings with some qualification in his study of Warren, Pennsylvania and Binghamton, New York. He found "anti" fluoridation voters tended to have lower income and lower occupational status.[2] In Northampton, Massachusetts, the Mausners also found that those supporting fluoridation came mainly from the younger groups, and, contrary to Taylor et al those in professional, managerial, and other white collar occupations favoured fluoridation. The Mausners also found that those without children were more likely to oppose fluoridation and that voters who favoured fluoridation usually had high education.[3]

However, Gamson reports a more complicated relationship between fluoridation opinion and education. He found that those with less than eighth grade education and those with college education were strongly for fluoridation while

*Teacher and guidance counsellor, Bonnie Doon Composite High School, Edmonton.

†Associate professor of Sociology, University of Alberta.

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those with medium education were less likely to be in favour of fluoridation. Age was also non-linear in its relationship to fluoridation opinion.[4] Galagan reports that those communities in which fluoridation has received acceptance are generally those that are "more wealthy," have a higher level of education, a larger percentage of children under the age of 15 and a low percentage of people over 65.[5]

While there are areas of considerable agreement among the researchers, the situation appears to be rather complex. Age, education or income when considered separately may have a high correlation with a fluoridation vote but when these factors are combined the correlation may be low. The highest correlation when multiple factors were combined, in Gamson's and Iron's New England study, was per cent population over 65 and per cent with incomes under $2,000. However, the correlation was not high and they concluded that "a more likely hypothesis is that specific events occurring within a community are more crucial determinants of fluoridation outcome than any relatively fixed attribute such as median age or education."[6]

Many of the fluoridation studies have been directed toward the goal of determining a relationship between attitude toward fluoridation and other political and social attitudes. Mausner labels the anti-fluoridation attitude as "anti-scientific" and hypothesizes that this attitude fits into a complex of anti-scientific attitudes now prevalent among some populations in the society.[7] However, Kirscht and Knutson found high positive general attitudes toward science regardless of their respondent's position of fluoridation.[8]

The relationship between "pro" fluoridation voters and "liberals" has been investigated by Taylor, Munro and Fuqua.[1] In New Zealand, Mitchell found a correlation between Labour Party voting and opposition to fluoridation.[9] However, Gamson found it hard to distinguish between "pro" and "anti" fluoridation voters on grounds of political liberalism, conservatism, or on the questions of individual rights and government intervention.[10] This latter relationship is also not clear according to diverse findings. Green found that each of his 22 anti-fluoridation leaders whom he interviewed in Cambridge used the argument of individual rights infraction and he in turn hypothesizes a liberal pro-fluoridation relationship.[11]

Studies on effective propaganda which indicate that information does not necessarily lead to attitude conversion are supported by the growing recognition that educational campaigns alone on fluoridation are unsuccessful. Gamson found that while leaders on both sides claimed that further education would increase their respective votes, Cambridge data showed that there was little difference in the information held by proponents and opponents. They found that an education campaign might influence people to vote if it was well planned, but a less skillful campaign raised doubts in the already "pro" oriented population.[12] Green found that individuals who were genuinely convinced that fluorides in water may have deleterious effects on their bodies did not change their views when exposed to scientific information refuting the dangers.[13] On the other hand, Metzner claims that one of the major problems in obtaining a favourable vote for fluoridation in a referendum is "lack of public information on fluoridation."[14]

Other factors which were present in successful campaigns, according to Henderson's mid-western comparative community study, were lack of public dissatisfaction with the local government, use of community-accepted leaders, consideration of minority groups in the campaign, and use of a sustained conservative, informal education program.[15]

Griffith analysed the emotional anti-fluoridation campaign in a Welsh county and discusses the counter-propaganda used. His findings lend support to the idea that high emotional content can be used effectively in a campaign. This situa-

tion did not involve a public referendum on the issue, however.[16] In Hastings, New Zealand, Taylor attributes the success of a fluoridation campaign to the local Junior Chamber of Commerce and further states that their members were under 40 and had children of an age to benefit from fluoridation.[17] However, in Ontario, Sturgeon gives the chief reason for the approximately two to one vote for fluoridation as the "unanimous approval and attendant favourable publicity of the actions and opinions of organized medicine and dentistry."[18]

Metzner's study also points up the recurring problem of opinion leaders in the fluoridation controversy. He cites the difficulty of communication due to class distinctions between dentists and the voters as one of the major problems in passing a fluoridation referendum.[14] Sanders has compiled extensive findings on the roles played by health professionals in the New England area. Among his conclusions is that "one or two crusading health people can generate enough support for their cause even though other health people can give little active support" to pass a fluoridation referendum, even if government officials and other key community people are divided.[19] He found that of the dentists in ten Massachusetts towns, only 40 per cent thought that a dentist should be a leader in a campaign.[20] Physicians, according to Sander's findings, generally saw their role as educators rather than community leaders in the fluoridation issue.[21] In another paper, Sanders reports that initiators tend to be people professionally interested in the fluoridation issue, community leaders tend to avoid the issue, and pro-fluoridationists make use of outside help during the first two stages while opponents get most outside help during the later stages.[22]

Schmidt makes the following concluding statement: "Experience shows that it is better to have a committee headed by businessmen, bankers or lawyers rather than one headed by dentists." Also, ". . . a small local opposition can be overcome with education, but an energetic local 'rabble-rouser' presents a greater problem."[23]

It is difficult to compare community decision-making on the fluoridation issue when the legal situations differ as widely as they have in many of the communities studied. Some communities have accepted fluoridation by executive decision, others have rejected fluoridation on the same basis while still others require a referendum or plebiscite. In some cases the research has been based in communities where the issue was whether or not to continue fluoridation of the waters rather than initiate the process. In Andover, England, fluoridation became a political issue on which candidates in local elections were successful or defeated.[24]

Green and Briggs made a comparative study of 53 communities, 27 of which accepted fluoridation, and found that those which accepted fluoridation "tended to be smaller, wealthier, better educated, to have a higher proportion of children, and to be growing more rapidly than the 26 communities rejecting the proposal." They also indicated that fluoridation was more likely to pass when it was decided by administrative decision rather than through a referendum.[13]

Summary

A considerable amount of research on the sociological aspects of fluoridation has been done particularly in the United States. Analysis of available studies reveals conflicting data and suggests that the subject is rather complex. It seems quite possible that some citizens may have no interest or opinion whatsoever in fluoridation, some may have an interest in fluoridation but do not have strong feelings for or against it, while others may be sufficiently interested in the subject to have an opinion but will not be sufficiently concerned to cast a vote in a fluoridation plebiscite. Such factors plus the effects of propaganda in swaying the opinion of the uncommitted voter are in need of detailed study.

Résumé

On a fait beaucoup d'études, surtout aux Etats-Unis, sur les implications sociales de la fluoration. On se rend compte à l'analyse des rapports publiés sur cette question que les statistiques qu'ils contiennent sont contradictoires et que le problème est compliqué. Il se peut que des citoyens n'ont pas d'intérêt et qu'ils ne se sont pas formé d'opinion sur la fluoration; d'autres s'intéressent à la fluoration, mais ils sont indifférents quant à son application dans leur milieu; enfin, il y en a qui sont suffisamment intéressés pour s'être formé une opinion, mais ils ne sont pas assez convaincus pour voter en sa faveur au cours d'un plébiscite. Il faudrait étudier plus à fond l'influence qu'exercent ces facteurs et la propagande sur l'opinion du voteur indécis.

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Bonnie Doon Composite High School

Fee Schedule Study in Progress • The Dental Services Committee of the Canadian Dental Association is conducting a study of items and nomenclature of fee schedules. Assistance from any organizations or groups within the profession will be appreciated. Subject matter on this topic will be forwarded to any interested group on request. Enquiries should be directed to the Secretary, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

A study of interest in fluoridation

D. G. Fish, M.A., and*

G. K. Hirabayashi,† Ph.D.,

Edmonton, Alberta

When a public health issue is presented to the citizens of a community by a municipal council or public health board, it is logical for the official body to wonder whether the public is interested in the issue or not. It is possible that the members of such bodies are themselves deeply involved in the matter and as such find it hard to conceive that others can be less interested or, indeed, not interested at all in such a vital issue.

The word "interest" as used in this study has frequently appeared in studies of voting behaviour and is considered practically synonymous with the psychological concept of "attention." The index of interest used in many voting studies has been a simple self-rating by the respondent of how interested he was in the issues. This simple device has been found to stand up well under tests of consistency and validity, a subjective "great interest" response, for example, being associated with firmer opinions, more active participation in the campaign, and greater exposure to campaign propaganda. It is possible to obtain one simple index of an individual's concern or involvement with an issue under study by simply asking him how interested he is in the issue and making sure that the question will be understood and meaningful.

Previous studies have shown that about one-third of the population professes to be greatly interested in the United States presidential election;[1] however, those who are greatly interested are not randomly distributed in the population and distinguished by certain social characteristics. Thus, supporting in general the common sense belief that women are less interested in public affairs than are men, four major studies present evidence that men in fact are more interested in elections than women.[1-4]

Age is another discriminating factor in studies of interest in elections. Berelson et al reported that 35 per cent of respondents over the age of 45 were interested in politics in contrast to 21 per cent of those under the age of 45.[2]

A most striking differentiation occurs in terms of education. Lazarsfeld et al claim "formal education is a direct creator of interest."[1] In one study 57 per cent of college educated people reported a great deal of interest in the United States presidential election, compared to only 23 per cent of those with grade school education only.[2]

Socio-economic status is also relevant with the higher socio-economic status levels displaying more interest in politics and elections than the lower echelons.

The greater the partisanship, the greater the interest, is a finding that has particular relevance to a study of voting on fluoridation. In the political sphere in the United States, 54 per cent of Republicans and 51 per cent of Democrats reported a great interest in political affairs, while only 15 per cent of the neutral, noncommitted respondents reported a similar amount of interest.[2] In addition, these voting studies show clearly that if the election is psychologically salient to the individual, he is more likely to vote than the individual who has merely passing interest in the campaign. For example, in

*Ph.D. candidate in sociology, London School of Economics.
†Associate professor of Sociology, University of Alberta.
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the 1940 election studies, 96 per cent of the "very interested" voted in contrast to only 27 per cent of those who were not interested.

The findings of these previous studies formed the basis for a set of hypotheses related to social characteristics and the distribution of interest in flouridation. The hypotheses tested in this study were as follows:

1. Men have more interest in fluoridation than women.
2. Interest increases with age, up to the age of sixty, with a reversal in the trend after that age.
3. The higher the educational level, the greater the interest.
4. The higher the occupational level, the greater the interest.
5. The higher the income, the greater the interest.
6. Property owners are more likely to be interested than non-property owners.
7. Those with children under the age of eighteen are more interested than those without children in this category.
8. Fluoridation will receive fewer "not interested at all" responses than the by-laws, the aldermanic elections, and politics.
9. Those who express interest in fluoridation are more likely to express interest in by-laws, the aldermanic elections and in politics.

Method

Trained interviewers used a special questionnaire called a "structured schedule" to obtain responses about interest in fluoridation. This method involves first setting up a series of questions on the subject, testing them for response and then redrafting the questionnaire so that the questions are categorized. In the categorized or "structured schedule" alternative answers are possible. These answers were coded to simplify the collection of data. The schedule underwent five pretest revisions before it was finally adopted for the survey.

Interest in fluoridation was measured by the respondent's self-rating of his interest in the issue. This rating was based on a seven point scale with "one" inferring "very interested," and "seven" "not interested at all." For the purposes of analysis, the seven point scale was collapsed into three categories, "one" and "two" representing "very interested;" "three," "four" and "five" representing "moderately interested;" and "six" and "seven" representing "not interested at all." The data were gathered by trained interviewers from a random sample of the residents of the city of Edmonton during the period from June to October of 1960. Fluoridation plebiscites had been carried out in Edmonton in October 1957 when 64.6 per cent of the voters favoured fluoridation and in October 1959 when 55.7 per cent of the voters favoured fluoridation.

In order to generalize the findings to the city as a whole, a multi-stage sampling procedure was utilized. Each respondent was selected on the basis of the following random techniques: stage 1, a 50 per cent random sample of the polling divisions; stage 2, a random sample of ten blocks within the selected polling divisions; stage 3, a random sample of two lots within the selected blocks; stage 4, a random sample of one household from the selected lot; and stage 5, a random sample of one adult of voting age within the selected household — the respondent.

In the course of data collection careful interviewer supervision was administered including reliability and bias checks. Replacements of the selected samples were not made until after four "call-backs." The final sample totaled 356 cases.

Findings

1. *Do men have more interest in fluoridation than women?* — In Edmonton 35 per cent of the men were very interested in the issue compared to 41 per cent of the women but the difference was not significant. Whether this tendency can be ascribed to the inherent nature of the

fluoridation controversy, the fact that it is a local rather than a national issue, or to a different status of women in public affairs in Canadian society (as compared to United States society) is largely a matter of speculation. Certainly women are traditionally associated with the health and care of children and it may well be that fluoridation has particular salience for the mother. Thus, while federal affairs and federal politics may be the province of the male, explicitly or otherwise, fluoridation as an important aspect of children's welfare is very much within the wife's and mother's domain.

2. *Does interest in fluoridation increase with age up to the age of sixty with a reversal in the trend after that age?*— The relationship between age and interest in fluoridation appears rather complex. Of those under forty 90 per cent showed some degree of interest with nearly 50 per cent of those expressing great interest. The middle age group, on the other hand, which in other voting studies has shown the greatest interest in elections and campaigns, had the lowest percentage of "very interested" responses, although over 50 per cent of this group expressed moderate interest in the issue. These results suggest the idea that the high interest shown by the younger people may be a function of the specific issue, with the middle age groups or "mature" population maintaining interest in fluoridation as a public issue but without the enthusiasm that would be appropriate to a more personally relevant topic. Older people, those 60 and over, have significantly less interest than the younger age groups. These people, of course, stand to benefit least from fluoridation and may be less receptive to innovations such as public health measures.

3. *With higher educational level is there greater interest in fluoridation?* — Lazarsfeld's statement that formal education is a direct creator of interest was well validated in the present study. Only 56 per cent of those with one to six years of education have any interest at all in the issue, compared to approximately 90 per cent of those with high school education and better. And while 78 per cent of those with seven to nine years of education express interest, little more than a quarter of these are very interested.

4. *With higher occupation level is there greater interest in fluoridation?* — In the case of occupation and interest, the relationship, while statistically significant, cannot be simply described as "the higher the occupational level, the greater the interest." The self-employed have almost as high a percentage of "not interested at all" as have the unskilled, while the clerical and sales groups have the lowest rate of any occupation group of "very interested" responses. If, however, the total of "very interested" and "moderately interested" responses is taken as the index of "interest," then it can be said that the higher the occupational level, the more likely the individual is to be interested in the issue, with the exception of the self-employed group. As a group, the self-employeds' interest pattern appears to be closer to the "working classes" than to other occupational groupings and this may be due to the fact that the self-employed category probably includes a number of skilled and semi-skilled tradesmen in business for themselves.

5. *With higher income is there greater interest in fluoridation?* — With regard to socio-economic status there is a significant positive correlation between income and interest; the higher the income, the greater the interest. The percentage of those who are not interested at all decreases steadily from 33 per cent in the low income group to 4 per cent in the high income groups. The relationships between the "very interested" and the "moderately interested" categories vary from group to group, the "very interested" responses predominating in the income group of $5,000-$6,999 which might be considered a "just better than average" income group. In the next higher income group the percentage of "very interested" responses drops to 46 per cent, while in the high in-

come group only a third of those who claim to be interested in the issue say that they are "very interested." This latter group, however, displays a high proportion of "moderately interested" responses, with a total of 91 per cent being either moderately or very interested in the issue.

6. *Are property owners more likely to be interested than non-property owners?* — The findings in this study were that neither the vested interest in city affairs presupposed by payment of taxes nor the residential stability implied by property ownership has any influence on the amount of interest in a municipal issue such as fluoridation.

7. *Are those with children under the age of 18 more interested in fluoridation than those without children?*—There was a distinct tendency for those with young children to exhibit greater interest in fluoridation, the distribution being significant at the 0.05 level. While 50 per cent of those with preschool children are very interested in fluoridation, only 30 per cent of those with no young children are that interested, this latter group displaying 24 per cent of "not interested at all" responses, nearly double that of other groups. Despite the fact that fluoridation is effective up to the age of 12, nearly 60 per cent of the interested responses of the "under six" group are "very interested," while little more than 40 per cent in the older group display this much enthusiasm. That the latter group included children for whom fluoridation would have no relevance (that is, children over 12) is not a relevant factor since inspection of the data reveals that the parents of the older children within this category are actually more interested in the issue than are the parents of the younger children with ages from six to 12. It is also of interest to note that the respondents with no children express the least number of "very interested" responses but that the total of "moderately interested" and "very interested" is nearly as high as those with school age children. This tendency may be reflecting a potential relevance of fluoridation.

8. *Will fluoridation receive fewer "not interested at all" responses than money by-laws, aldermanic elections and politics?*

and

9. *Will those who express interest in money by-laws, aldermanic elections and politics also express interest in fluoridation?* — The general finding in the political studies that approximately one-third of the population is very interested in an election appears to hold true for the local fluoridation plebiscite. Thirty-seven per cent of the sample expressed themselves as being very interested in the issue with only 16 per cent having no interest at all. It should, perhaps, be remembered that these ratings occurred some months after the campaign and represent the respondent's interest at the time of the interview; it is likely that interest runs considerably higher at the height of the campaign. The hypothesis that fluoridation, because of the emotional nature of the controversy, would receive fewer "not interested at all" responses than other issues was not supported by this study. While the distribution of the categories of interest in the various public issues was not significant, several tendencies that can be discerned are worthy of comment.

In the money by-laws 22 per cent of the respondents are "not interested at all," a percentage that is nearly double those of "politics" and the "aldermanic race." This difference is undoubtedly due to the restrictive nature of the electoral regulations, non-taxpayers being unlikely to have any interest in the money by-laws since in Edmonton they are not permitted to vote on them.

Although the total number of "interested" responses in politics was approximately the same as in the other issues, a smaller proportion of these were in the "very interested" category. Thus, only 24 per cent of the population were very interested in politics compared to 37 per cent in fluoridation and money by-laws. It would seem that local issues, the impact of which may be perceived as more immediate and measurable, command greater "attention"

than politics in general. After all, the construction of bridges, the institution of fluoridation and the honesty of the municipal officials may be considerably more salient to the individual than the federal government's policy in the Far East.

A further index of the relative interest potential of the fluoridation issue was also found. The full interest scales of 1 to 7 were used to compare each respondent's interest in fluoridation with each other issue. It was found that nearly 40 per cent of the sample were equally as interested in fluoridation as in politics, by-laws and the aldermanic elections. In the case of the local issues, approximately equal numbers were more and less interested in fluoridation, whereas in the case of politics 38 per cent were more interested in fluoridation compared to 23 per cent who were less interested. The correlation between interest in fluoridaton and interest in the other issues appeared to be quite high (although it was not calculated statistically), and it was noted that only 5 per cent of the differences in interest in the respective issues were polar; that is, only 5 per cent of the sample reported that they were very interested in one issue, say fluoridation, and not interested at all in the by-laws.

Summary and conclusions

A study of interest in fluoridation in Edmonton, Alberta has revealed the following:

1. Interest in fluoridation was significantly distributed by such social criteria as age, education and socio-economic status.

2. The higher the occupational level, the higher the income and the more education, the greater was the interest in fluoridation.

3. Women were just as interested in fluoridation as men.

4. There was a trend toward the younger the individual, the more likely that he would display interest in fluoridation. This trend was reflected in a significant difference between those with young children and those with grown families in the distribution of interest.

5. Non-property owners were just as interested in fluoridation as property owners.

6. The same people who were interested in fluoridation were also interested in politics and other public issues.

Résumé

Des recherches entreprises sur l'intérêt que suscite la fluoration chez les citoyens d'Edmonton ont révélé les faits suivants:

1. L'intérêt suscité par la fluoration varie selon certains critères, tels que l'âge, l'éducation et la condition économico-sociale.

2. Plus importante est l'occupation de la personne, plus considérable est son revenu, plus elle est instruite, plus elle est intéressée par la fluoration.

3. Les femmes sont aussi intéressées à la question que les hommes.

4. Il semble que plus la personne est jeune, plus elle manifeste de l'intérêt pour la fluoration. Cette tendance se constate surtout d'une façon marquée par l'intérêt que portent à cette mesure les parents qui ont de jeunes enfants comparativement à ceux dont les enfants ont grandi.

5. Les locataires sont aussi intéressés que les propriétaires.

6. Les personnes intéressées à la fluoration sont aussi intéressées à la politique et aux autres questions d'intérêt public.

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University of Alberta

Endodontics: vague practice or scientific discipline

Yury Kuttler, D.D.S., M.D.,*

Mexico City, Mexico

Notwithstanding the astonishing progress in endodontics during the past 20 years, surprisingly little of this advance has penetrated the teaching or practice of this branch of dentistry. It is perplexing that unsatisfactory endodontic routines remain in vogue in many parts of the world. In this article the author reviews some recent developments in endodontics which enable dentists to practise this branch of dentistry with greater precision.

The vague endodontics that is often still taught and practised can be compared to the primitive operative dentistry in the era which preceded G. V. Black. Dental caries, then, was considered in a superficial manner. The quest for so-called "sterilization" of decayed dentine and a filling material that would miraculously stay in a poorly prepared cavity was the ultimate objective of those days. It was not until Black differentiated between various types of carious lesions, established five classes of cavities, defined the diverse types of retention form, and offered precise indications for the use of each filling material, that operative dentistry became a more precise and scientific discipline.[1] Endodontic practice, by comparison, has progressed much more slowly. Personal observation in 52 dental schools

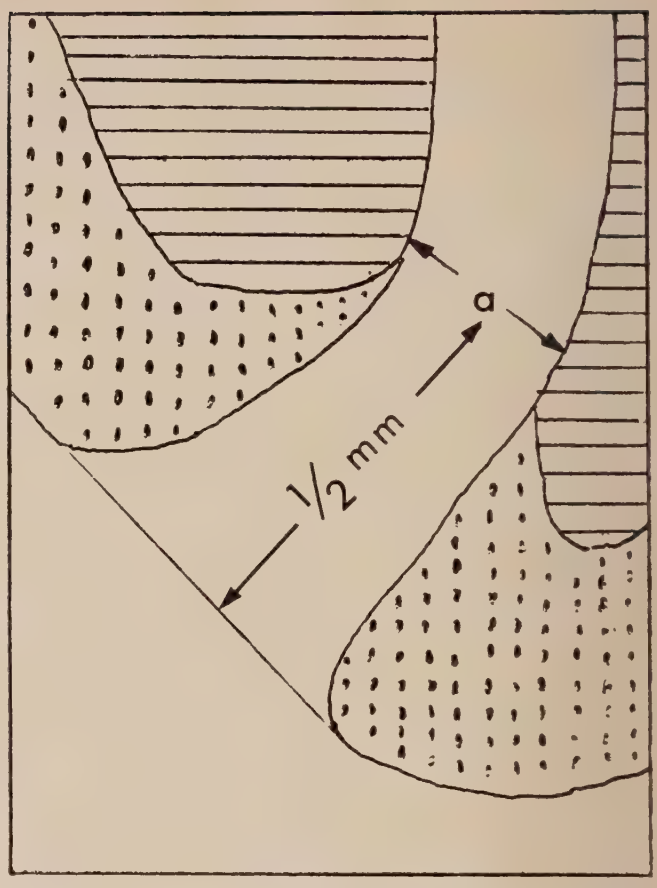
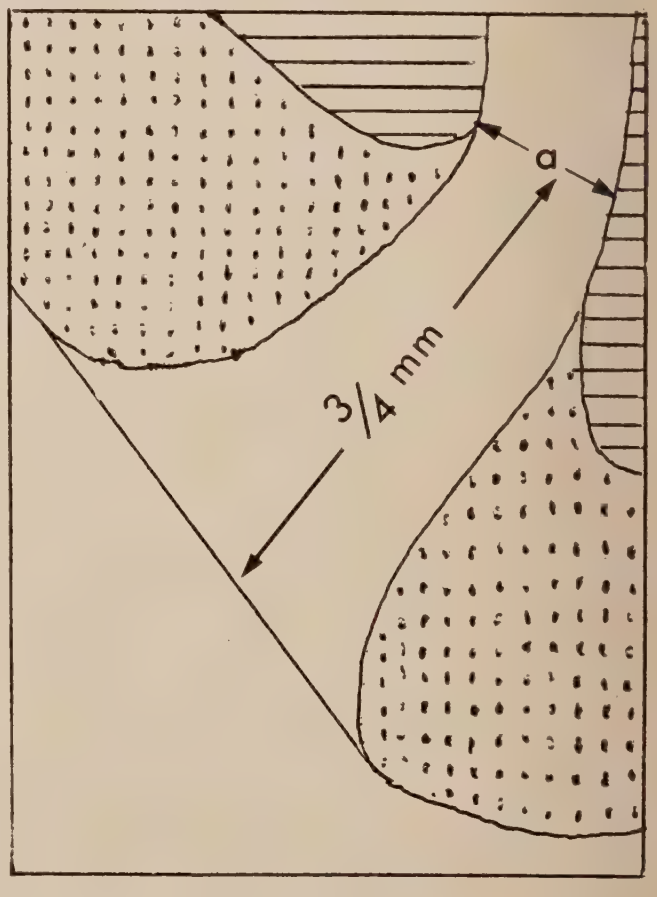


FIGURE 1 Schematic representation of root apexes. Apex of younger tooth (above) and older tooth (below). (a) designates the place of minor diameter of the canal. It occurs about ½ mm. coronal to the foramen in younger teeth and about ¾ mm. coronal to the foramen in older teeth.



*Extraordinary professor, University of Nuevo Léon, Mexico.

and in dentists' practices in 95 cities of 39 countries has shown what little use is being made of recent endodontic advances.[2]

Modern endodontics rests on four fundamentals:[3] (1) basic knowledge; (2) a minimum of indispensable equipment; (3) correct use of precise, tested techniques; and (4) surgical cleanliness. One cannot be satisfied with his endodontic results if he has only limited basic knowledge; if he practises with inadequate and disarranged instruments of poor quality; or if he disregards the requirements of surgical cleanliness. Successful results, under these circumstances, are attributable to luck or to the wisdom of nature which, sometimes, cures in spite of the "doctor." This explains why so many dentists fall easy prey to commercial panaceas.

The proliferation of a vague, confused, and often etymologically inaccurate endodontic terminology has further contributed to the widespread pattern of confused, deficient and inaccurate diagnosis and therapy. The writer recently prepared a vocabulary of endodontic terms which may help to rectify this situation.[4]

Fortunately, the chaos in endodontic instruments, which formerly contributed so prominently to loss of time, patience and enthusiasm on the part of the dentist, has given way to a logical and practical selection of instruments dispensed in specially designed containers. Also available are special radiographic mountings, special envelopes for endodontic files, and the like.[5] Gone, too, are the days of therapeutic uncertainty about deep carious lesions which caused so many pulp injuries. In their place we now resort to conservative treatment which preserves the pulp in the majority of cases.[6,7]

Pulp therapy

The various changes which the pulp may undergo used to be labelled simply as "pulp disease."[8] Little or no distinction was made between pulp wounds, hyperaemia and pulp degeneration on the one hand, and necrosis or gangrene on the other. The former represent conditions in which the pulp is not diseased, whereas the latter are irreversible post mortem changes which cannot become diseases any more.[9] With diagnosis so vague, it is not surprising that treatment of the pulp frequently failed. These various pulp alterations are now clearly defined. They can be identified with precision and correctly treated.

So-called capping of a pulpal wound and stump, using only a calcium hydroxide paste, was formerly fraught with the twin hazards of (1) failing to place the capping material in contact with or (2) exerting traumatic pressure on the pulpal tissue. Only with luck, and then rarely, was an adequate application ever made. Now we first carry with precision a suspension of calcium hydroxide in a platinum loop to a point near the wounded or amputated pulp from whence is spreads over the soft tissue.[10] Then a calcium hydroxide paste is applied.

The innumerable and vague classifications of pulpitis which evolved over the years are mainly of academic interest. Treatment of pulpitis in the final analysis resolves into two possibilities: (1) cameral (chamber) pulpectomy, or (2) total pulpectomy.[11] From a clinical standpoint pulpitis may thus be classified on the basis of its extent into (1) incipient pulpitis, which is treated by cameral pulpectomy, and (2) total pulpitis which is treated by total pulpectomy. Since the pulp must be extirpated, its histopathological status, whether in terms of a serous, purulent, ulcerous or hyperplastic pulpitis, is of little significance from the therapeutic standpoint.

Another procedure advocated in the past — the use of reduced circlets to "unroof" or trepan the pulp chamber — hindered rather than facilitated treatment.[12] None of the chamber roofs has a circular shape. The roof is more or less triangular in the incisors, oval in the cuspids, and square in the bicuspids and molars. The size of the roof corresponds to about one-quarter of the area of the

lingual surface in the anterior teeth, and one-third of the area of the occlusal surface in posterior teeth.

Root canal therapy

If treatment of the cameral pulp tissue was formerly somewhat haphazard, the attempts at root canal therapy were downright primitive. Topographic anatomy of root canals[13] and the existence of five distinct classes of root canals were overlooked.[14] Moreover, the three phases of root canal therapy — emptying, preparing and filling — were simply standardized.

Emptying. — The procedure of emptying the root canal cannot, for obvious reasons, be identical in a vital infected pulp, a necrotic or gangrenous pulp, and in a case with para-endodontic alterations (clinically or radiographically identifiable modifications of the periapical, periradicular and adjacent regions).[15]

Because the apical foramen was wrongly considered the narrowest part of the canal, the tendency was to empty the root canal up to this point. In 1955 the author demonstrated that the isthmus or minor diameter of the root canal is found usually at the junction of dentine and cementum, just at the point where the canal penetrates the cementum portion. From that point the canal gradually widens to the foramen, taking on a funnel shape. The constricted portion in the canal is therefore not located in the foramen. It occurs about ½mm. coronal to the foramen in young teeth and about ¾mm. coronal to the foramen in older teeth (Figure 1).[16]

Others in the past recommended a short subtotal pulpectomy (in fully formed roots) notwithstanding the fact that the residual portion of the pulp tissue never produces any dentine.[17]

There are some who acknowledge the existence of a root canal isthmus. But, for unknown reasons, they locate this isthmus at an arbitrary point 2mm. coronal to the foramen. They routinely empty the canal up to this point only.

We now know that it is impossible,[16] unnecessary, and incompatible with the best results in total pulpectomy to empty the cementum portion of the root canal.

Preparing. — As early as 1957 the author devised a therapeutic classification of root canals based on their morphological characteristics.[14] Class 1 root canals (62 per cent) are rather wide and have a slight apical curvature. Class 2 canals (31 per cent) are very narrow and curved. Class 3 canals (3 per cent) are straight in both mesiodistal and buccolingual planes. Class 4 canals (3 per cent) are incompletely formed in the apical portion and are therefore slightly funnel shaped. Class 5 canals (1 per cent) occur in partly formed roots; they are very wide and end in the form of a large funnel. Adequate biomechanical preparation must obviously vary according to the class of root canal.

A number of unwarranted practices, ostensibly committed in the name of root canal "sterilization," have gained popularity over the years.[18] Collectively, they underrate the importance of adequately enlarging the canals. Some dentists with a taste for chemistry resort to all kinds of available pharmaceutical preparations. Others, preferring physical means, put excessive trust in ionization, electrophoresis, electrocoagulation, and the like.[19] Some, with a special liking for surgery, abuse the practice of apicoectomy; while yet others, inclined to microbiology, rely mainly on the use of antibacterial agents accompanied by several pre- and postoperative bacteriological controls. The true scientist is not swayed by personal inclinations. He seeks scientific verities and adapts sound therapeutic measures to the individual patient's needs.

Filling. — The existence of more than 100 filling techniques and about 250 filling materials tacitly proves that none is satisfactory for all root canals.[20] The failures of the student who employs only one technique, the one his teacher showed

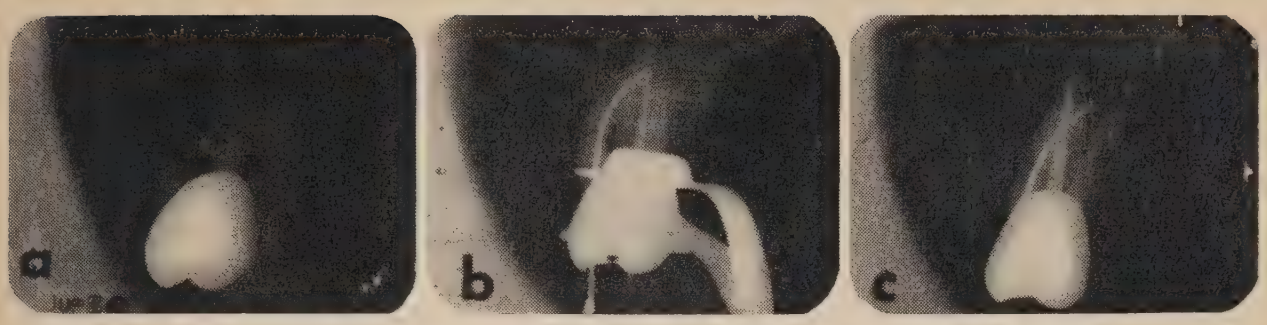


FIGURE 2 Endodontic treatment of a maxillary first permanent molar. (a) Preoperative radiograph. Chronic rarefying paraendodontitis associated with the lingual root canal. Extremely curved mesial canal with necrotic content. Content of the distal canal is vital. (b) Trying of the cones. Note the vertical access and maximum straightening of the mesial canal. (c) Completed obturations.

him, and the disillusionment of the graduate after trying out a few other techniques with the same unsatisfactory results, have led many to abandon endodontics altogether.

Some dentists frankly admit that they only occasionally, and by luck, fill a root canal correctly.[21] Others class over-filled canals as "successful," tolerate vertically under-filled canals, and simply disregard laterally under-filled canals lacking cement around the end of the rigid cone. This latter group cannot be radiographically detected in the majority of cases.

In the author's experience, the majority of root canals can be treated with precision provided adequate attention is paid to (1) existence of the five different classes of root canals, (2) adequate access to the pulp chamber and, in multirooted teeth, to the canals themselves, (3) maximum straightening of curved root canals, (4) proper widening of root canals, and (5) the selection of the appropriate filling techniques (Figure 2).

Precision root canal therapy demands the use of stops on root canal instruments. Metallic stops are preferred, but, occasionally, rubber stops 1½mm. thick are satisfactory. Thin rubber dam stops are unsatisfactory. The blind use of instruments without any stops at all is to be condemned. Only sharp instruments should be used to enlarge root canals. Such instruments are discarded after they have been used three times. Small grooves on instruments with metallic stops or special cuts in the rubber stops, made after each use of the instrument, serve to indicate when the instrument should be discarded.

A graduated probe, instead of visual estimation, is mandatory in judging the correct depth of insertion of paper and silver points.

Terminology

It is important to bring some order to the loose and confusing terminology currently employed in endodontics. Only two examples are cited to illustrate the problem.

The term "para-endodontic alterations,"[15] for example, is a more complete and generic appellation than such terms as pathology, complications, diseases, acute abscesses, apical, periapical, lateral, alveolar, etc.[4] Terminology based upon histological differentiation through radiographs is of no value in clinical endodontics.[22-25] From a radiographic standpoint one can only differentiate between rarefying, condensing and mixed alterations.[4] Para-endodontic alterations are clinically differentiated into acute, subacute, and chronic states. Further subdivision in terms of aetiology results in the recognition of primary and secondary manifestations. Primary lesions originate in the para-endodontium (with no relation to the pulp), whereas secondary lesions arise in consequence to pulp complications.[3]

Another loosely employed term, "endodontic surgery," should be limited to surgical procedures within the endodontium and differentiated from "para-endo-

dontic surgery" performed in areas beyond the endodontium.[26] For practical purposes para-endodontic surgery may further be subdivided into urgent and non-urgent categories.

Conclusion

Widespread adoption by a world endodontic association of better practices will bring the benefits of modern endodontic therapy within the reach of an ever-increasing number of people.

Résumé

Il est étrange que, malgré les avances réalisées dans le domaine de l'endodontie au cours des derniers vingt ans, l'exercice et l'enseignement de cette discipline dans toutes les régions du globe ait si peu profité des données nouvelles. L'auteur souligne deux observations qui ont beaucoup d'importance dans l'exercice de l'endodontie: la morphologie des canaux et la localisation de la partie la plus étroite du canal radiculaire.

Il classifie les canaux radiculaires en cinq groupes: canaux de classe 1 (62 pour cent), larges et légèrement courbés à leur apex; canaux de classe 2 (31 pour cent), étroits et courbés; canaux de classe 3 (3 pour cent), droits; canaux de classe 4 (3 pour cent), légèrement en forme d'entonnoir à leur apex; canaux de classe 5 (1 pour cent), en forme large d'entonnoir à leur apex.

La partie la plus étroite du canal radiculaire se situe à la rencontre de la dentine et du cément, à un demi-millimètre du foramen dans les dents jeunes et, à trois quarts de millimètre du foramen dans les dents plus vieilles.

L'auteur insiste sur l'importance de rendre droits les canaux courbés et d'agrandir les canaux étroits. Il est impossible, inutile et illogique, pour obtenir de meilleurs résultats au cours d'une pulpotectomie totale, d'enlever la pulpe dans la zone du cément. Il faut se servir d'instruments tranchants et de mesures en caoutchouc ou en métal. L'auteur condamne la terminologie plutôt imprécise et souvent incorrecte utilisée en endodontie. Il propose plutôt une terminologie plus simple basée sur des considérations thérapeutiques plutôt qu'histologiques.

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Calle Hamburgo 250

abstracts

CHRISTMAS DISEASE (HAEMOPHILIA B) IN PERIODONTAL THERAPY

G. M. Kramer and A. F. Grissel. O. Surg., O. Med. & O. Path. 15:1056, 1962.

There are many reports of hæmorrhagic diseases that are of such severity that the dentist is forewarned before performing dental procedures. Little information can be found in the dental literature, however, relative to the milder hæmorrhagic defects.

The dentist engaged in periodontal therapy is particularly interested in these blood diseases because of their significance in the ætiology of periodontal disease as well as the problems that they create during therapy.

The advent of extensive periodontal surgical techniques, such as vestibular excision, infrabony pocket operation, osteoectomy, and others, necessitates a more careful appraisal of the patient's systemic background. These procedures, in contrast to the relatively simple routines of gingivectomy, gingivoplasty, or curettage, expose the underlying tissues over a much larger area. Although these exposures are covered with a surgical dressing which is applied with pressure and contains hæmostatic agents, bleeding may occur even in patients whose blood-clotting mechanisms are within normal limits. In the event major periodontal surgical procedures are carried out in cases of undiagnosed blood defects, mild as they may be, the sequelae are magnified enormously.

Difficulty in managing the surgically created wound in these instances is encountered not only during the operation but also after the area is dressed.

Christmas disease resembles hæmophilia in that it is inherited by the male as a sex-linked recessive trait. Clinically, it is indistinguishable from hæmophilia. The defect lies in the missing serum fraction, plasma thromboplastin component (PTC) which influences the production of thromboplastin. In classic hæmophilia the serum protein, antihæmophilic globulin (AHG), is lacking, whereas in Christmas disease the previously mentioned serum protein fraction, PTC, is lacking.

In mild cases of Christmas disease the routine bleeding time, coagulation time, and clot-retraction time may be within normal limits. The dentist who has elicited a positive history of bleeding or has seen postoperative hæmorrhage difficulties in a patient should therefore recommend more specific prothrombin-consumption tests or the thromboplastin-generation test. These are not routine blood studies and will not be carried out unless indicated.

If a diagnosis of a blood disease is made, the dentist is obliged to weigh the influence of this systemic background on the therapeutic methods usually employed to abort the disease process. It is doubtful that many dentists or patients would care to involve themselves with blood transfusions in order to carry out periodontal treatment. In periodontal therapy, surgical procedures reaching the deeper periodontal structures may have to be ruled out. It may not be possible to eliminate exaggerated sulcus depth or abnormal tissue contours, but the compromise with the ideal goals of periodontal therapy is justified in the best interests of the patient.

editorials

Fluoridation and Parliament Hill

Ottawa has been criticized in the past for its lack of a clear-cut stand on fluoridation. When Dr. Stanley Haidasz, the member for Toronto Parkdale, asked in the House of Commons on November 28, 1962 whether the Department of National Health and Welfare recommends the fluoridation of water supplies as an effective and safe method of diminishing dental caries, he was informed by the former minister that the department's role in this public health field does not extend to the making of recommendations, and that the department simply presents the statistical findings from time to time.

Ottawa has, of course, a perfect right to refrain from advising anyone about fluoridation. But in order to remain consistent, surely the same principle should apply with impartiality to all other health matters. This is not so, however. That is why few people were happy with the explanation given to Dr. Haidasz.

After all, it is common knowledge that federal authorities have, over the years, assumed more responsibility in matters of public health than they are constitutionally required to do. This is the natural outcome of an implied obligation to make available to Canadians benefits accruing from scientific discoveries and advances in preventive medicine and public health. If the federal authorities felt at liberty to make recommendations regarding Sabin oral poliomyelitis vaccine, is there any reason why they should hesitate over fluoridation? Having been intimately engaged for many years in scientific studies to determine the value of fluoridation, surely they can advise Canadians whether or not to adopt this measure. Anything less would seem like an evasion of responsibility.

In the Republic of Ireland, where there have been no study projects involving mechanically fluoridated water, the Min-

ister of Health is empowered to make regulations providing for the fluoridation of piped water supplies in each health authority area. In Great Britain, after only five years of such study, the Minister of Health has urged local authorities to fluoridate their water. Furthermore, the British government will indemnify these authorities if any proceedings are taken against them in respect to fluoridation. Surely after twelve years of study, we are entitled to similar leadership from our own federal government.

Now that we have a new administration in office in Ottawa, a forthright expression of policy which places the government squarely behind fluoridation would do much to speed up adoption of this necessary public health measure.

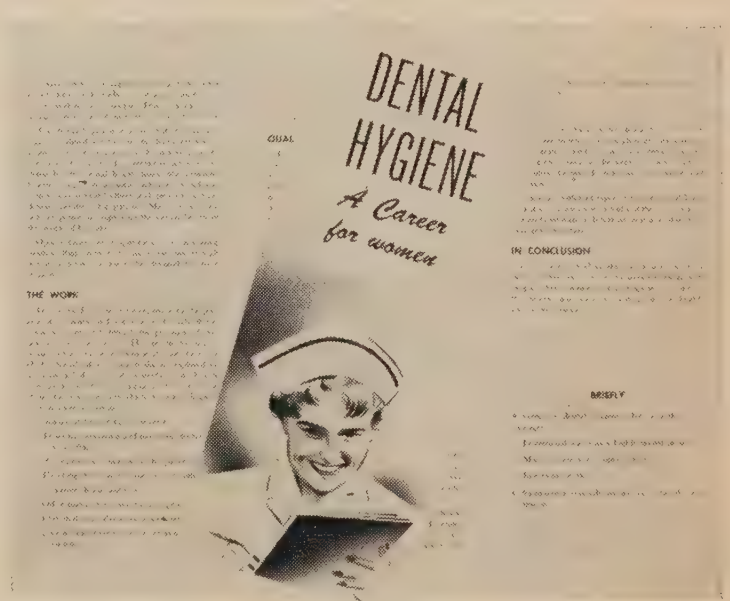
Dental hygienists form national association

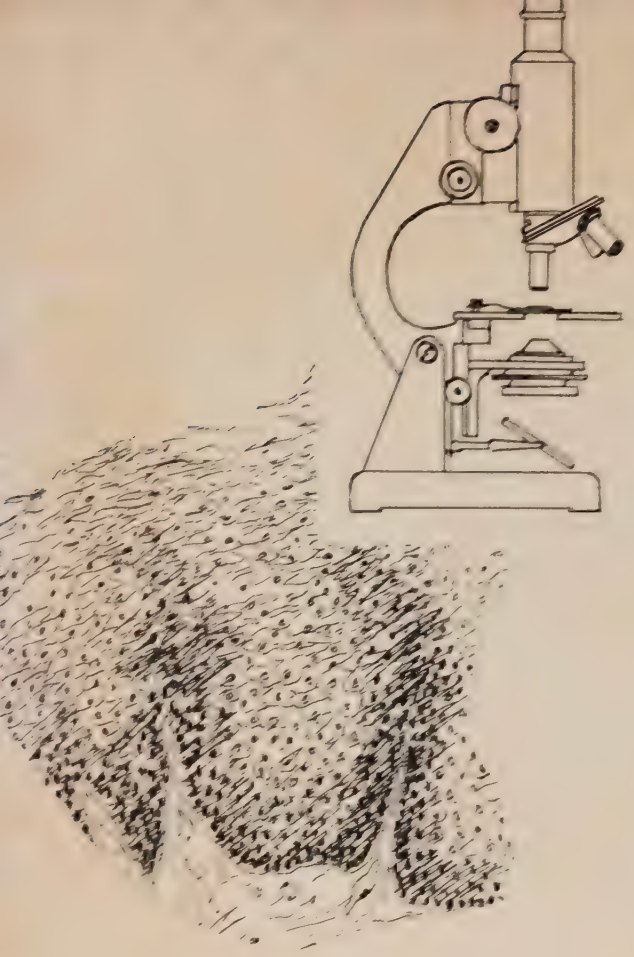
The formation of a Canadian Dental Hygienists' Association is a progressive development, one that was badly needed in Canada. More than 11 years have elapsed since the first six dental hygienists graduated from a Canadian school of dental hygiene. These early graduates who found their way into dental practices or public health employment were the trail-blazers who had to demonstrate the value of the services which a dental hygienist could contribute in these settings. These early pioneers did much to develop the respect accorded to their vocation today. A public health dentist would be unable to provide the volume and the calibre of service required were it not for the assistance of skilled dental hygienists working under his direction. Few conscientious practitioners — no matter how great their skill and efficiency — can come anywhere near to meeting the demands for their service without the assistance of an equally conscientious and efficient hygienist.

The purposes of the Canadian Dental Hygienists' Association are twofold: to improve the proficiency of those serving in that vocation and to weld an organized group of dental hygienists into an important auxiliary dental service. These objectives have the full support of the Canadian Dental Association.

The Canadian Dental Hygienists' Association deserves the full support of dentists everywhere. The Canadian Dental Association believes that there is a need for a strong organization of dental hygienists who serve as an important part of the dental health team.

The dentist, who employs a dental hygienist, owes it to himself, his practice and his community to encourage her to join and take advantage of the opportunities such membership affords. As the hygienist increases her efficiency she increases the capacity of the dentist and the dental office with which she is associated to meet the growing demand for dental care.





dentistry in the news

Oral cancer cytodetection endorsed; nation's dentists asked to participate in program

A proposal that could result in much earlier detection and treatment of malignant oral lesions in dental patients was unanimously endorsed by representatives of the Canadian Dental Association, provincial corporate members of the C.D.A., and Canadian dental schools who attended a special conference on cytodetection of oral cancer during the fourth annual conference for provincial dental secretaries, Montreal, December 2-4, 1963. After hearing medical and dental experts describe the cytological smear technique, delegates recommended early establishment of oral cytodetection facilities in each province and called for a campaign to acquaint dentists with the technique.

The special conference was sponsored by the Canadian Dental Association in association with the National Cancer Institute of Canada. Conference participants included H. C. Sandler, noted authority on oral cytodetection and Chief of Dental Services at the Veterans Administration Hospital in Brooklyn, New York; J. A. Pedler, professor of Oral Diagnosis at the University of Toronto and dental surgeon-in-chief at Toronto General Hospital; D. W. Thompson, pathologist in surgical pathology and cytology at Toronto General Hospital; D. L. Anderson, research associate at the Faculty of Dentistry, University of Toronto; W. G. Cosbie, director of the Ontario Cancer Treatment and Research Foundation; E. T. Tieman, assistant director of the National Cancer Institute of Canada; and C. H. M. Williams, professor of Periodontics at the University of Toronto, and conference chairman.

Long used for the diagnosis of cancer in the urinary and genital systems, cytodetection is based on the fact that cells removed from a malignant or premalignant lesion have characteristically abnormal cytological features. Five per cent of all cancers occur in the mouth and lips. Ninety-six per cent of all primary malignant oral lesions are carcinomas. Nine out of ten are of the squamous cell type. They are particularly amenable to cytodetection by the smear technique. This technique has demonstrated a high degree of reliability in the early detection of cancer. Smears are made only where abnormalities of the mucosa are detected by direct vision. The smear technique does not supplant the need for biopsy. Suspicious or positive smears are confirmed by means of a biopsy.

PROVINCIAL SECRETARIES SUPPORT ORAL CANCER CYTODETECTION CAMPAIGN

Nation-wide promotion of the cytology smear technique for diagnosis of oral cancer was one of the principal topics discussed at the fourth annual conference of secretaries of provincial dental organizations. Sponsored by the Canadian Dental Association, the conference was held in Montreal, December 2-4, 1963.

Meeting with representatives of dental schools, the secretaries devoted one day of their meeting to discussion of the effectiveness of cytodetection and launching a national campaign to acquaint the dental profession with the oral smear technique. H. C. Sandler of New York City, an interna-

tional authority on oral cancer cytodetection, addressed the group. Program arrangements were made through the National Cancer Institute of Canada and the Canadian Dental Association with financial support from the cancer institute and the C.D.A.'s Council on Research. C. H. M. Williams of Toronto, C.D.A. representative to the cancer institute, was a key figure in developing the conference program.

Conference sessions were held at the new offices of the College of Dental Surgeons of the Province of Quebec, at McGill University and at the Université de Montréal. G. M. Dewis of Halifax was conference chairman.

DENTAL SERVICES COMMITTEE STUDIES FEE SYSTEMS AND PREPAYMENT PLANS

At its recent meeting in Toronto, December 9-10, 1963, the Dental Services Committee of the Canadian Dental Association approved in principle a draft relative value fee system. Copies of the draft will be distributed to provincial dental services committees, provincial dental secretaries, dental schools and dental specialty groups for comment prior to final review and adoption by the national committee.

This system, based on a formula that embraces time, responsibility (knowledge, judgement) and laboratory costs for each service, relates all dental services to an arbitrarily selected basic unit. The value of each service can be calculated from the product of the formula by a dollar conversion factor. The formula gives uniform results for the same dental service rendered under the same conditions anywhere, but the conversion factor permits adjustment of dollar values according to prevailing economic conditions in different areas. At the same time a uniform relationship between the value of different dental services is maintained throughout.

The committee also adopted a new policy statement on dental prepayment plans. This statement sets forth principles for profession-sponsored as well as commercial or private dental insurance plans.

In further actions the committee:

Decided to re-submit to the Board of Governors a resolution on pro-rated fees previously adopted by the committee in November 1962;

Reviewed dental plans being offered by seven insurance companies;

Recommended continuation of the Association's staff dental care plan; and

Directed the secretariat and the steering committee (for the Association's brief to the Royal Commission on Health Services) to prepare an analysis of recommendations in volume 1 of the anticipated report of the Royal Commission on Health Services as soon as this is published. This analysis will be distributed to each corporate member of the Canadian Dental Association for study and action where appropriate.

RECRUITMENT ADVERTISING APPROVED

The National Recruitment Committee of the Canadian Dental Association has approved an advertising program costing $1,300 in 1964. Special articles on dental careers are to appear in the careers issue of *Canadian High News*, *Vie Etudiante* and *Canada Careers Directory*. Approval of the program was granted at the committee's annual meeting in Toronto November 4.

Coupons clipped from the 1963 *Canadian High News* page on dentistry totalled 400 at mid-November. Career information is sent to students and the coupons are then forwarded to provincial recruitment committees for personal follow-up. The newspaper has a circulation exceeding 100,000 in secondary schools across Canada. *Vie Etudiante* is a somewhat similar publication distributed to French-speaking students in the province of Quebec. *Canada Careers Directory* is a bilingual reference book distributed to school libraries and guidance officers.

Committee members reported on recruitment activities across the country; approved two new advertising projects; reviewed material for a planned new filmstrip; learned more about the new Canadian Dental Hygienists Association; asked for literature to be prepared about dental assisting as a career; and urged increased local co-operation with secondary school guidance officers. The committee also hopes to develop a type of manual which would offer suggestions to assist provincial and local recruitment committees.

Attending the meeting were J. A. Michaelson of Vancouver, R. G. Ellis of Toronto, Gustave Ratté of Quebec City, D. C. Steeves of Moncton, W. J. Dunn of Toronto, chairman, and J.-P. Lussier of Montreal, chairman of the C.D.A. Council on Education. The committee's two consultants also attended. They are C. E. Peirce who represents the Canadian Section of the American Dental Trade Association, and Mrs. Donna Leslie representing dental hygienists.

NEW RECRUITMENT FILM POPULAR

The film "Challenge of Dentistry", put into circulation a year ago by the National Recruitment Committee, has been seen by over

a third of a million Canadians. Through a film distributing service the film has had 22 television screenings and over 90 group showings. T.V. stations in all provinces except New Brunswick and Prince Edward Island broadcast the film to an estimated 331,800 viewers. In showings to various groups, mostly at schools, 3,571 people saw the film in seven provinces, exceptions being Alberta, Prince Edward Island and Newfoundland.

Prints of the film are available upon request to Modern Talking Picture Service, 1875 Leslie St., Don Mills, Ontario.

RECRUITMENT EFFORTS PRODUCE APPLICANTS WITH HIGHER GRADES

Dean R. G. Ellis has reported that the recruitment program in Ontario has resulted in more applicants and higher academic standing. The dean of the dental faculty at the University of Toronto reported to the recent meeting of the National Recruitment Committee.

In 1959-60, before a concerted recruitment effort was undertaken, 125 applications were received, 102 of them fully documented and from which 100 students were admitted to the predental class. By 1962-63, 439 applications were received of which 240 were fully documented and from which 124 were accepted. This represents in the four-year period an increase of 250-300 per cent in the number of applications.

The increased numbers of applicants for admission to dentistry resulted in the selection of a predental class with markedly improved grades. Up to 1959-60, about 40-50 per cent of the class selected had 65 per cent or higher averages in Ontario grade 13. This figure rose to 65-70 per cent with second class honours or better in the sessions of 1961 to 1963. These improved grades, the dean reported, were reflected subsequently in the students' standings in first and second dental years.

Toronto's predental year has been replaced with a year in arts and science; so the faculty no longer considers applicants directly from secondary schools. In 1963 a large number of enquiries was received concerning admission to the first dental year. A total of 670 enquiries included 144 requests for calendars and 526 for information. Subsequently 207 applications were received for admission to first dental year, of which 84 qualified. With only about 25 places available, nearly 60 fully qualified applicants had to be refused.

Dean Ellis praised the recruitment efforts in the province for producing not only large numbers of applicants, but applicants with high academic standing which is reflected as they proceed through dental school.

"FRONTIERS OF DENTAL SCIENCE" AVAILABLE

A recently published paperback book *Frontiers of Dental Science* is now available in the Canadian Dental Association library and at book stores. The book was produced by the National Science Teachers Association in co-operation with the American Dental Association. It is worthwhile reading for students with more than a passing interest in dental science.

NEW PROVINCIAL RECRUITMENT CHAIRMEN NAMED

New chairmen of provincial recruitment committees have been named in Alberta and Saskatchewan. J. E. L. Mathieson of Edmonton has taken charge in Alberta. In Saskatchewan W. L. Clark of Conquest is the new chairman. The National Recruitment Committee offers all possible assistance to these, and to all provincial chairmen, in the tasks they are undertaking.

REPRESENTATION ON HOSPITAL COUNCIL SOUGHT

Formal application for a seat on the Canadian Council on Hospital Accreditation has been made by the Canadian Dental Association. The application was authorized at the annual meeting of the Board of Governors in Toronto, May 1963. A decision from the hospital council is expected early in 1964.

The Canadian Council on Hospital Accreditation is jointly sponsored by the Canadian Medical Association and the Canadian Hospital Association. The latest edition of "Standards for Accreditation of Canadian Hospitals," published by the council, devotes a whole section to dentistry which is in complete accord with the policies of the Canadian Dental Association.

THIRD SURVEY OF DENTAL PRACTICE BEGINS MARCH 15

Dentists from coast to coast will receive questionnaires in March asking for current information on the conduct of dental practice. This survey undertaken by the

Canadian Dental Association's Bureau of Economic Research will constitute the third survey of dental practice.

Previous surveys, made at five-year intervals, have enabled the Association to answer increasing demands for factual data on the conditions of dental practice throughout Canada. Such information is invaluable to individual dentists and health authorities alike. All members of the Association are urged to co-operate by completing and returning questionnaires promptly.

Canada and the Provinces

MANITOBA M.P. URGES INCREASED FEDERAL AID FOR DENTAL HEALTH

More federal money to expand the training of dental and auxiliary personnel, to promote educational dental public health programs and fluoridation, and to step up the tempo of dental research were advocated by a Winnipeg dentist in the House of Commons on November 14, 1963. Speaking during the debate on estimates for the Department of National Health and Welfare, Joseph Slogan (P.C.—Springfield) criticized the inadequacy of federal health grant expenditures for dental health by comparison with public expenditures for dental care. "The people of Canada spend about $125 million a year on dental services. This represents 8-10 per cent of the amount of money spent by the Canadian public on (total) health services" yet "of the national health grants only one per cent is allocated to dental health." Ten per cent of federal health grant money should be allocated to dental health, Dr. Slogan stated.

"The niggardly amount of money spent on dental research is illustrated when we see that only 15 cents is spent on dental research for every hundred dollars that is spent on dental treatment . . . . This amount should be substantially increased," Dr. Slogan emphasized.

Stressing the universal nature of dental diseases, Dr. Slogan warned fellow parliamentarians about the danger of implementing a comprehensive dental insurance plan without first reducing the prevalence of preventable dental diseases and increasing dental manpower. He commended national and provincial organizations of the profession for their desire to collaborate in extending prepaid dental care to more and more Canadians. ". . . I should like to see steps taken immediately in the fields of education and prevention to see that the groundwork is laid for the day when (a co-operative plan between government and profession) can be realized. I hope it will not be brought about merely as a measure of political expediency as has happened recently in a province, causing turmoil and friction between the profession and the community. I hope we shall never see that happen in Canada at large . . . ," Dr. Slogan concluded.

SLOGAN SPEAKS IN COMMONS ON DENTAL CARE PROGRAMS

The following are further excerpts of a speech made by Joseph Slogan in the House of Commons during the debate on the estimates of the Department of National Health and Welfare, November 14, 1963. Dr. Slogan, a dentist, is also member of parliament for Springfield, Manitoba (C).

" . . . There are various methods of introducing a (dental care) program of this sort. The first one is that the government must bear some responsibility before introducing such a program for doing something to provide assistance to educational institutions and to provide the personnel necessary to carry out this program . . .

"This is, of course, largely a provincial matter. However, I think that if the federal government is going to impose a system of compulsory dental health care universally it must recognize that it has a role to play in educating the personnel. Second, it must recognize that through education of the public a large amount of dental treatment can be avoided. Therefore, a great deal of emphasis has to be placed on public dental health education, and a lot of it at the federal level. The third matter is that if a comprehensive dental health program is introduced there is obviously going to be the necessity for auxiliaries because of the shortage of dental manpower, and very careful steps must be taken in this program to institute a training scheme for these auxiliaries.

"There are two principles which could be brought to bear in the introduction of a dental health program. First of all, you might as well wipe out of your mind the idea that everyone can be covered at the beginning. There are only two ways in which a dental health program can be attached to a general health insurance program. The first of these would be by introducing the lower age levels or

school age levels, and then advancing the plan to include the general public. Second, they could adopt some such plan as now exists in Manitoba. Here the service is provided for those who are indigent, in receipt of mothers' allowances, and so on. These all have medicare cards. They present them to their dentists and are entitled to free dentures and other services as required. The dental association itself administers this plan. It is paid a per capita fee by the provincial government to cover expenditures, but the administration, as I have said is carried on by the association itself. We prefer this because it is less complicated than filling out endless forms in duplicate, triplicate and quadruplicate as has to be done now in dealings with the Indian affairs branch, the Department of Veterans Affairs and so on. If we do not adopt one or the other of these approaches a situation will be created in which the best interests of dental health will not be served . . ."

DENTAL EQUIPMENT TARIFFS QUESTIONED

The following is quoted from *House of Commons Debates*, October 21, 1963. "Mr. Slogan" is Dr. Joseph Slogan of Winnipeg, a Member of Parliament (P.C.—Springfield) and member of the Canadian Dental Association.

"Question No. 1,326 — Mr. Slogan:

1. What tariffs are imposed against dental equipment, supplies and materials imported into this country?

2. Is there any difference in the tariffs on dental materials used in the mouth as against those used outside the mouth?

3. Specifically what tariffs are imposed on alginate impression materials and prophylaxis brushes and rubber cups manufactured in the United States?

Mr. Garland:

1. Dental instruments of any material designed for surgical operative use, orthodontic appliances and parts thereof for the correction of malocclusions, dental operating lights, dental X-ray machines, X-ray film, X-ray developing tanks, dental instrument sterilizers, unmounted artificial teeth, are admissible free of duty under all tariffs.

Dental chairs, dental units, electric dental engines and dental cuspidors are admissible free of duty when imported under the British preferential tariff or the most-favoured nation tariff. These articles are dutiable at 35 per cent ad valorem under the general tariff.

Other dental equipment and supplies are subject to the provisions of the customs tariff according to their classification.

2. Dental materials are liable to the same rates of duty whether used in or out of the mouth.

3. Alginate impression compound is dutiable at 20 per cent ad valorem, when imported from the United States. Prophylaxis brushes and rubber polishing cups for dental hand pieces are admissible free of duty under all tariffs."

CANADIANS ELECTED TO AMERICAN COLLEGE

Seven Canadian dentists received fellowships in the American College of Dentists at the annual convocation of the college in Atlantic City last November. They are D. J. Ferguson of London, Ontario; P. J. Gitnick of Montreal; H. M. Jolley of Toronto; R. T. Lamb of Montreal; R. W. Marshall of Toronto; and D. H. Munro and W. P. Munsie both of Vancouver.

TV CLINIC FILMS OFFERED TO SOCIETIES AND STUDY GROUPS

Sixteen-mm. sound films recorded from televised dental clinics presented at the 1963 C.D.A. national convention are being offered by Procter and Gamble, without charge, for showings to dental schools, societies and study groups throughout Canada. Also available are the University of Pennsylvania television clinics shown in the United States and parts of Canada in 1961, as well as three further colour clinics on various aspects of dental practice and research.

Subjects of the C.D.A. clinics are surgery for immediate denture insertion; gold foil technique; cementation of inlays, crowns and bridges; the dental hygienist's role; everyday radiographic technique; and surgical aspects of periodontics.

The five Pennsylvania clinics, all included in one film, cover management of the edentulous patient; evaluation of audio-analgesia; the infrabony pocket; root resection; and high-speed instrumentation.

Microcosms of the mouth — technique; complete dentures; and surgical correction of developmental deformities of the mandible are the subjects of the three colour clinics

Further information may be obtained from J. C. Carroll, The Procter and Gamble Company of Canada, Limited, 1320 Yonge Street, Toronto, Ontario.

DENTISTRY IS A "PROSPEROUS PROFESSION"

The Financial Post (November 16, 1963), in an article entitled "Your handy guide to where the money is," lists dentists among "the prosperous professions."

Dentists have made the biggest gains in income during the decade 1951-61. Dentists' average incomes were: 1951 — $6,287; 1956 — $9,230; 1961 — $12,337. The *Financial Post*

figures came from the Department of National Revenue's recently released annual volume on tax statistics.

MEDICARE IN CANADA AT A GLANCE

(Reprinted from the *Toronto Daily Star*, Saturday, November 9, 1963.)

Saskatchewan.—Canada's only compulsory, tax-supported, universal medicare plan. Cost to family — $12 a year.

Alberta.—A non-compulsory plan operated through private carriers. Family cost $162 a year. Government subsidizes low-income groups if they sign means test paper. Fewer than one-third population eligible for government assistance.

Ontario.—No plan expected before 1966. Scheme now being drawn up is expected to be non-compulsory and operated through private agencies. But will be available to all.

Maritimes.—No medicare plan. In a brief to the government Nova Scotia doctors have proposed a voluntary plan with modest rates to be handled by private agencies.

British Columbia.—No plan in works. Some 89 per cent covered by private or union plans. Premier Bennett says medicare can only come in co-operation with Ottawa.

Quebec.—No plan proposed by government. Doctors have prepared scheme for a non-compulsory plan but have not released details.

Newfoundland. — Government - operated schemes cover children free and people in remote areas at $10 a year. Adults in larger centres depend on private plans.

Manitoba.—No government plan. Half of its citizens have private coverage. Province waiting for Royal Commission on Medical Care's recommendations.

PROFESSION-SPONSORED PREPAID DENTAL CARE DELAYED IN ONTARIO

Plans to run dentist-sponsored pilot projects in Toronto to test the feasibility of prepaid dental care have been delayed, according to W. J. Dunn, registrar-secretary of the Royal College of Dental Surgeons of Ontario.

The Dental Services Committee of the College learned from its solicitor that incorporation under the Prepaid Hospital and Medical Services Act of Ontario is more complicated than was realized. Letters patent granting a charter to Ontario Dental Services will not be issued without the written approval of the provincial Superintendent of Insurance. Before giving such approval, the Superintendent requires preliminary information on rates proposed to be charged; type of coverage proposed, particularly as to specified exclusions; who will exert effective control over the corporation; from what source and to what extent any deficits in the early years of operation will be made good; what working capital will be made available to the corporation; and what is proposed as regards the financing of its activities.

Dr. Dunn stated that the difficulty in devising a dental care plan is that dental illness does not respond to the insurance principle because of its universal prevalence. Another problem is the difficulty of relating need and demand for dental care. The uncertainties of dental care should be insured rather than the small predictable items. Dr. Dunn envisages a plan employing deductibles, maxima and co-insurance features. The College believes that implementation of pilot projects could be very costly.

ONTARIO DENTAL ORGANIZATIONS SUBMIT BRIEF TO MEDICAL SERVICES INSURANCE ENQUIRY

The Royal College of Dental Surgeons of Ontario and the Ontario Dental Association have submitted a joint brief to the Medical Services Insurance Enquiry on Bill 163, an Act Respecting Medical Services Insurance.

The two organizations oppose the enactment of the bill in its present form. The proposed act would entitle beneficiaries to reimbursement for fees paid for covered medical and surgical services. Dental services are specifically excluded. However, many services which can be rendered by dentists as well as physicians are included. Bill 163 would pay for these services only if performed by physicians. The Ontario brief describes the education and competence of the dentist to treat ailments of the oral tissues and related structures and documents the illogical and unfair nature of this stipulation which would discriminate against dentists and their patients. It continues, "This denial of benefits also jeopardizes the principle of the right of the patient to exercise free choice in the selection of the legally-competent practitioner to treat his injuries, illness, or condition."

LONDON LIFE ANNOUNCES GROUP DENTAL PLAN

The London Life Insurance Company has announced that group dental expense insurance is now available to all employers of groups of 25 or more employees. Group dental expense insurance covers all reasonable and customary expenses incurred by an em-

ployee and his dependents for necessary dental services.

The following services are covered by the plan: fillings, extractions, inlays, crowns, dentures and denture repairs, bridges, root canal therapy, periodontal care, orthodontics, prophylaxis, palliative treatments, radiographs, and examinations (with a limit of not more than one examination every six months).

There is a deductible of $25 per person insured for dental expenses incurred during a calendar year.

The balance of expenses incurred during the year are shared on the co-insurance principle, with the employee paying 20 per cent of his expenses and the London Life paying the remainder.

The maximum amount payable per person in any one calendar year is $1,000; the maximum total benefit payable per person is $5,000.

The cost of group dental expense insurance is related, in part, to the size of the group and type of benefits now provided.

PROFESSIONS ON TRIAL, NOTED JURIST SAYS

"The organized professions must find ways and means of helping their members give more expeditious services cheaper. . . . The organized professions must assume the responsibility of seeing that all services are provided, and lead the way in solving the problems of cost and payment."

These were the words of Mr. Justice Edson Haines addressing the Toronto Medico-Legal Society on May 6. Mr. Haines was legal counsel to the Ontario Medical Association prior to his elevation to the bench. The complete text of his address was published in the July 1963 issue of the *Ontario Medical Review.*

OTTAWA MAY ACT TO CURB INDISCRIMINATE FOOD ENRICHMENT

"Ottawa is concerned with the growing number of foods to which one or more of seven vitamins, or of five minerals are now being added." So said Elizabeth Chant-Robertson, research associate at Toronto's Hospital for Sick Children, to several hundred delegates from medicine, dietetics, nutrition and public health who attended a conference in Toronto, October 18, to mark the tenth anniversary of flour and bread enrichment in Canada. The conference was sponsored by the Bakery Foods Foundation of Canada.

The Food and Drug Directorate in Ottawa intends to amend regulations covering the use of added nutrients, Dr. Robertson explained. In future (1) evidence of a public need for increased intake of a specified vitamin or mineral, (2) demonstration of the proposed food as an effective vehicle for the additive, and (3) stability of the additive in the proposed food will be three stipulations that must be met before any further addition of nutrients to foods will be authorized.

International Items

PIERSON IS A.D.A. PRESIDENT-ELECT

F. A. Pierson of Lincoln, Nebraska, has been chosen president elect of the American Dental Association. Many Canadian dentists will remember Dr. Pierson as official representative of the A.D.A. at the 1961 Canadian Dental Association convention in Saskatoon.

Also at the 104th annual session of the American Dental Association in Atlantic City last November, J. P. Hollers of San Antonio, Texas, took office as president, succeeding G. D. Timmons of Philadelphia.

The House of Delegates approved an increase in A.D.A. membership dues from $30 to $40 per year; recognized endodontics as a specialty, the first new specialty since 1950; approved plans to construct a 22-storey, $12 million central office in Chicago; and adopted a 1964 operating budget of $4,229,960.

Registration for the session was 17,552, a new record topping all previous sessions except for the 1959 centennial in New York. The total included 7,653 A.D.A. members and 218 international dentists. The Canadian Dental Association was represented officially by president-elect Rémy Langlois of Quebec City.

POSTGRADUATE COURSES OFFERED IN NEW YORK

The First District Dental Society offers a variety of short postgraduate refresher courses during the winter months. Further information concerning these courses may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York 1, New York, 10001, U.S.A.

CLINICIANS, EXHIBITORS SOUGHT FOR A.D.A.-F.D.I. SCIENTIFIC SESSION

Applications are now being accepted for participation in the combined scientific program of the 105th annual session of the American Dental Association and the 52nd annual session of the Fédération Dentaire Internationale, to be held in San Francisco, November 9-12, 1964. Application forms for presenting clinical lectures, free-time discussions, scientific exhibits, table clinics, or motion pictures are available on request from the Council on Scientific Session, American Dental Association, 222 East Superior Street, Chicago, Illinois, 60611, U.S.A. Completed application forms must be received by the council no later than April 15, 1964.

THREE ORAL SURGERY PROGRAMS OFFERED IN CHICAGO

Three training programs in oral surgery are being offered by the University of Illinois College of Dentistry in Chicago. The courses are a three-year full-time course with credit toward a master of science degree, a two-year full-time didactic program leading to a master of science degree for candidates who have had at least one year of clinical training, and a one-year full-time didactic program for candidates who have completed at least one year of hospital training. Further information may be obtained from D. M. Laskin, Department of Oral and Maxillo-facial Surgery, University of Illinois College of Dentistry, 808 South Wood Street, Chicago 12, Illinois, U.S.A.

Dental Organizations

NEWFOUNDLAND DENTISTS ELECT FIRST WOMAN PRESIDENT

Kira Obrazcova, a native of Latvia now resident in Corner Brook, Newfoundland, was recently named president of the Newfoundland Dental Society. She is probably the first woman to head a provincial dental organization. After receiving her early education in Riga, Latvia, and Hanau, Germany, Dr. Obrazcova came to Canada in 1948. She attended Memorial University, St. John's, for predental studies and Dalhousie

Kira Obrazcova

University, Halifax, where she received her dental degree in 1955. Dr. Obrazcova practises with her sister, Junia Langins, in Corner Brook. In private life she is Mrs. Lloyd Candow.

Also elected at the October 2-5 convention of the Newfoundland Dental Society were R. A. Downton, vice-president; D. A. Hollett, treasurer; and R. V. Windsor, secretary. B. L. Bowden was named delegate to the C.D.A. Board of Governors, succeeding J. M. Darcy. All are from St. John's.

Guest speakers were Don W. Gullett, secretary, Canadian Dental Association, who spoke at the luncheon on October 5, and Rémy Langlois, president-elect, Canadian Dental Association, who addressed a dinner meeting the same evening.

DUGUAY IS PRESIDENT OF NEW BRUNSWICK SOCIETY

The New Brunswick Dental Society may establish a $500 annual scholarship to help a deserving New Brunswick student study dentistry. A recommendation to this effect and a similar proposal to increase the value of the annual Dr. F. A. Godsoe Memorial Award tenable at Dalhousie University were submitted for consideration at the society's annual business meeting in Moncton, September 21-22, 1963. Also adopted were two proposals concerning fluoridation and organization of the society's secretariat. The society will continue to make vigorous efforts to secure legislation permitting local option regarding fluoridation. Separate elective offices will also be created for the positions of secretary-treasurer and registrar. The latter change will likely take effect later in 1964.

Officers elected for the year 1963-4 were Blaise Duguay of Caraquet, president; A. J. Coughlan of Saint John, honorary president; A. D. Bona of Saint John, vice-president; R. H. Dolan of Fredericton, past president;

and R. F. Sansom of Saint John, registrar-secretary-treasurer. Council members are J. G. Blackmer of Saint John; C. B. Allaby of Moncton; D. Boudreau of Edmundston; F. A. Murdock of Fredericton; J. J. E. Alain of Bathurst; and R. B. DeWare and D. C. Steeves, both of Moncton.

Blaise Duguay

Chairmen of standing committees are A. D. Bona, legal; R. B. DeWare, dental services; D. C. Steeves, discipline and bylaws; J. D. Blackmer, public relations; M. Levine of Saint John, dental public health; G. A. Cormier of Moncton, examining board; and D. C. Steeves, recruitment.

The following were named as representatives: J. F. Edgecombe of Saint John to the Board of Governors, Canadian Dental Association; G. G. Orser of Fredericton, alternate delegate to the Canadian Dental Association; R. B. DeWare to the National Dental Examining Board of Canada; G. L. Ramsay of Saint John, alternate delegate to the National Dental Examining Board; L. G. Zed of Saint John to the New Brunswick Cancer Society; and H. F. Bonnell of Saint John, referee to the Workmen's Compensation Board.

A. J. Coughlan, J. B. O'Brien, G. A. Cormier and S. K. Wetmore were named to a special scholarship committee.

E. L. MacINTOSH IS PRESIDENT OF CAPE BRETON SOCIETY

"Shortage of dental personnel is the most acute problem that must be dealt with before we could ever hope to have any type of dental insurance (plan in Nova Scotia)," J. F. Burke, president of the Nova Scotia Dental Association, told members of the Cape Breton Dental Society, October 28, 1963. Inclusion of dentists in Nova Scotia's proposed medical insurance plan and a clinical presentation on endodontics by L. G. Israel of Sydney formed the main topics of the society's meeting held at Sydney City Hospital.

Newly elected officers are E. L. MacIntosh of North Sydney, president; M. A. Laffin of New Waterford, vice-president; D. W. Macaulay of Sydney, treasurer; and W. B. MacKeigan of Sydney Mines, secretary.

MONTREAL CLUB HOLDS SUCCESSFUL FALL CLINIC

A diversified scientific and social program marked the thirty-eighth annual fall clinic of the Montreal Dental Club, October 26-30.

A preconvention seminar on gnathological concepts in crown and bridge prosthodontics, presented by V. O. Lucia of New York City, drew a large attendance. Visiting and local clinicians covered a wide range of topics. They included E. M. Miller of New York City, on practice management; L. S. Fosdick of Chicago, on caries control; and Emanuel Cheraskin of Birmingham, Alabama, on vitamin C metabolism and oral health. Local dentists contributed symposia on research, operative dentistry, periodontics, prosthodontics and oral surgery. Table clinics were well attended.

ZIMMERMAN AND GULLETT ADDRESS COMBINED MONTREAL SOCIETIES

Canadian Dental Association president James Zimmerman and secretary Don W. Gullett were the special guests at a combined meeting of the Montreal Dental Club, Mount Royal Dental Society and La Société dentaire de Montréal at the Queen Elizabeth Hotel, November 11, 1963. Dr. Zimmerman and Dr. Gullett participated in an informal discussion on problems of national concern to the dental profession.

Earlier the same afternoon Paul Geoffrion, professor and chairman of the Department of Orthodontics, Université de Montréal, discussed the role of the general practitioner in orthodontics.

ATLANTIC CONVENTION SLATED FOR CHARLOTTETOWN

Dentists from various points in eastern Canada and further afield are expected to converge on Charlottetown, Prince Edward Island, for the Atlantic Provinces Dental

At a recent reception tendered by the Nova Scotia Dental Association in Halifax, N.S.D.A. president J. F. Burke (centre left) makes a presentation to Canadian Dental Association secretary Don W. Gullett (centre right). Witnessing the event are (l.) C.D.A. president James Zimmerman and (r.) N.S.D.A. registrar-secretary G. M. Dewis.

Convention, July 5-8. Present plans call for holding the dental convention in the new "Fathers of Confederation Building" now under construction. The official opening of this building and other scheduled events during 1964 will commemorate the first meeting of the Fathers of Confederation in Charlottetown. In view of an anticipated influx of visitors and tourists. dentists who plan to attend the convention are urged to send their names and requests for hotel or motel accommodation without delay to L. I. Duffy, convention chairman, 202 Queen Street, Charlottetown, P.E.I.

C.D.A. PRESIDENT AND SECRETARY VISIT HALIFAX

Canadian Dental Association president James Zimmerman and secretary Don W. Gullett were guests of honour at a reception and dinner tendered at the Lord Nelson Hotel, Halifax, November 7, 1963 by the Nova Scotia Dental Association. More than 80 members witnessed a special presentation made by President J. F. Burke of the Nova Scotia Association to Dr. Gullett.

HAMILTON DENTISTS DONATE TO EDUCATION FUND

Hamilton dentists are responding to the nation's dental education needs. The Hamilton Academy of Dentistry recently contributed $500 to the Canadian Fund for Dental Education. This is one of the largest contributions from a local dental organization. The fund was established in 1963 to assist dental schools through teacher training, research, fellowships, scholarships and loan funds. Donations received so far by the fund approach $24,000.

CHILDREN'S DENTISTRY GROUP FORMED IN MANITOBA

Hugh Kopel, a Detroit paedodontist and staff member of the University of Detroit, addressed members of the recently organized Manitoba Chapter, Canadian Society of Dentistry for Children, at the group's first meeting in Winnipeg, November 2, 1963. Dr. Kopel discussed dental care for handicapped children and medication for children.

Chapter president W. H. Feasby welcomed the many dentists in attendance. Secretary L. Melosky reported on the national meeting held in Toronto in May 1963 when the Manitoba Chapter received a charter from the parent organization.

President H. A. Allen of the Manitoba Dental Association congratulated the assembled dentists for their initiative in forming a provincial chapter of the Canadian Society of Dentistry for Children. He emphasized the important role which the provincial chapter would play in future activities of the Manitoba Dental Association.

PRACTICE MANAGEMENT AND MOUTH PROTECTORS DISCUSSED AT WINNIPEG MEETING

Winnipeg Dental Society members, at their November meeting, learned how to make better use of their professional time when

L. W. Berger, an Indiana University dentist, gave an illustrated review of modern trends in practice management. Dr. Berger stressed the importance of up-to-date office layout and equipment design and making the fullest possible use of auxiliary personnel. Dr. Berger was accompanied by Mrs. Berger, also a dentist, who supplemented her husband's presentation with a table clinic.

Also at the same meeting, N. A. Winograd of Winnipeg spoke on the use of mouth protectors for participants in contact sports. Promotion of these appliances is to be considered by the Manitoba Dental Association.

SASKATCHEWAN COLLEGE MEETS

The annual meeting of the College of Dental Surgeons of Saskatchewan was held in Saskatoon on November 3, 1963. Council members authorized the offer of four annual scholarships of $150, two each tenable at the University of Alberta and the University of Manitoba; received a report on dental health insurance plans; and made the following appointments: R. O. Brett of Regina, representative to the Board of Governors of the Canadian Dental Association; W. F. Hancock of Fort Qu'Appelle, representative to the National Dental Examining Board of Canada; F. R. Smith of Saskatoon, registrar-secretary-treasurer; F. S. W. Green, H. H. Cowburn and J. J. Schachter to a committee on mouth protectors; and C. G. Halliday, M. J. MacDonell and L. Epstein to a committee on dental assistants' training programs.

SEATTLE DENTIST GIVES CROWN BRIDGE COURSE IN EDMONTON

J. D. Guthrie, prominent Seattle, Washington dentist, recently conducted refresher courses in crown and bridge prosthodontics for dental groups in Edmonton. Dr. Guthrie lectured October 25-26 at the Faculty of Dentistry of the University of Alberta, on October 27 before the Edmonton Crown and Bridge Study Group, and on October 29 before the Edmonton and District Dental Society. A graduate of the University of Oregon, Dr. Guthrie has been associated with undergraduate and postgraduate education at the University of Washington.

KOOTENAY DENTISTS NAME MYKIETYN PRESIDENT

Members of the Kootenay Dental Society met in Cranbrook, British Columbia, October 12, 1963, to hear C. R. Castaldi, well-known Canadian paedodontist, speak. Dr. Castaldi is professor and head of the department of paedodontics at the University of Alberta, Edmonton. Dr. Castaldi's formal presentation included a discussion of public health measures which will improve the level of dental health throughout the community. He particularly stressed the need for widespread adoption of water fluoridation.

Executive officers elected for the coming year were J. F. F. Mykietyn of Trail, president; Oliver Westrup of Cranbrook, vice-president; M. R. Bayes of Kinnaird, secretary; and N. J. Bedard of Nelson, immediate past president.

CANCER FEATURED AT VANCOUVER MEETING

Cancer was the main theme of the November meeting of the Vancouver and District Dental Society when staff members of the cancer clinic of the British Columbia Cancer Institute were the speakers. J. M. W. Gibson and J. A. MacDougall outlined the activities of the institute and described actual cases of cancer of the lip and tissues of the oral cavity. In each case the speakers gave an outline of the diagnosis, treatment and prognosis. Several live patient presentations were also made. Following the lectures the members of the Vancouver Society were taken on a conducted tour of the British Columbia Cancer Institute Building where the meeting was held.

ORTHOPAEDIC SURGEON ADDRESSES VICTORIA SOCIETY

R. N. Grant, a prominent orthopaedic surgeon of Victoria, British Columbia, discussed the problem of multiple injuries at the October meeting of the Victoria and District Dental Society. Dr. Grant urged the dental profession to seek better hospital relations and facilities to help cope with the increasing number of multiple injury cases caused by automobile accidents. In treatment of these injuries, Dr. Grant said, the services of a number of specialists are involved, but it is the dentist who is best qualified to treat mandibular and maxillary fractures successfully. To help prevent such multiple-injury accidents, Dr. Grant advocated the use of seat belts which could be strapped diagonally across the body and over one shoulder as well as going across the pelvis.

S. J. Fisher, an oral surgeon in Victoria, also addressed the meeting on "The dental abscess and the facial spaces."

Royal Canadian Dental Corps

CORPS CONFERENCE HELD

Subjects of mutual concern were discussed when the commanding officers of eight Royal Canadian Dental Corps (Regular) units met in Ottawa for the 14th Annual Director General of Dental Services' and Unit Commanders' Conference November 25-27. The conference was held under the direction of Brigadier K. M. Baird, Director General of Dental Services for the Canadian Forces. Commanding officers attending were: Col. B. P. Kearney, No. 11 Dental Company, Edmonton; Col. A. T. Roger, No. 13 Dental Company, Trenton; Col. G. R. Covey, R.C.D.C. School, Camp Borden; Col. R. H. G. Cunningham, No. 12 Dental Company, Halifax; Lt.-Col. R. B. Jackson, No. 14 Dental Company, Winnipeg; Lt.-Col. J. G. Butler, No. 15 Dental Company, Montreal; Lt.-Col. L. G. Craigie, No. 35 Field Dental Unit, Europe; and Major J. W. Fletcher, No. 1 Dental Equipment Depot, Petawawa.

PROFESSIONAL COURSES

In accordance with Corps policy to foster continuing training, the following officers have recently undertaken the indicated refresher courses: Lt.-Col. L. R. Pierce — oral surgery, Ent Air Force Base; Maj. H. G. Bunston — oral surgery, University of Michigan; Maj. A. L. Kelland — special course in dentistry, University of Michigan; Maj. P. S. Sills — complete denture prosthodontics, University of Michigan; Maj. J. W. Jolly — crown and bridge prosthodontics, U. S. Naval Dental School; Maj. J. M. Smith — periodontics, U. S. Naval Dental School; Majors G. I. J. Bisaillon and I. A. C. MacDonald — oral surgery, U. S. Naval Dental School; Capt. J. R. A. Vincent — partial denture prosthodontics, U. S. Naval Dental School; and Majors D. J. MacPhee and J. J. N. Wright — oral and dental surgery, Royal College of Dental Surgeons, London, England.

BRIGADIER BAIRD AT TORONTO

Brigadier K. M. Baird attended the regular meeting of the editorial board of *Oral Health* Magazine in Toronto on November 13, 1963. Brigadier Baird is consultant for the Armed Forces in Canada.

OFFICERS TAKE RELEASE

Officers who have recently taken their release from the Corps and returned to civilian life include Capt. R. D. H. Bunt of Trenton, Ontario, Capt. M. D. G. Conrad of Dartmouth, Nova Scotia, Capt. J. P. Houle of Drummondville, P. Quebec, and Capt. R. Lanthier of Ottawa, Ontario.

R.C.D.C. DENTAL ADVISORY STAFF

The Dental Advisory Staff of the Royal Canadian Dental Corps is comprised of an Assistant Director of Dental Services in the rank of colonel with each Army Command and a Deputy Assistant Director of Dental Services in the rank of lieutenant-colonel at each Area Headquarters. Photographs of these officers resume with this issue of the

Officers who attended the Director General of Dental Services' and Unit Commanders' Conference November 24-27, 1963 included (seated l. to r.) Col. B. P. Kearney; Brig. K. M. Baird; Maj.-Gen. W. A. B. Anderson; Col. I. A. L. Millar; Col. A. C. Leman; Col. R. H. G. Cunningham; (standing l. to r.) Maj. H. R. Kettyls; Lt.-Col. D. H. Hillier; Col. A. T. Roger; Lt.-Col. R. B. Jackson; Lt.-Col. G. C. Evans; Maj. A. W. Brusso; Lt.-Col. L. G. Craigie; Col. G. R. Covey; Lt.-Col. J. G. Butler; Maj. J. W. Fletcher; Lt.-Col. S. G. Bagnall; Capt. W. J. Thomson; Capt. D. H. Evans and Capt. E. Clark.

Lt.-Col.
J. B. Lachance

Journal of the Canadian Dental Association. Lt.-Col. J. B. Lachance, E.D. is Deputy Assistant Director of Dental Services for the Eastern Quebec Area.

Research

PHYSICIANS EYE FLUORIDE BONE BENEFITS

"The time is not far off when there will be good evidence to indicate that the older person may have more to gain from fluoridation than the child — not only will he have better teeth (his own) and thus be able to secure better nutrition in his old age, but he may also have stronger bones and will be less likely to fracture them should he have an accidental fall." This prediction was made by F. J. Stare, chairman of the nutrition department of Harvard's School of Public Health. Dr. Stare has made similar predictions on the promising bone-building property of fluorides in lectures and interviews across the country.

Another medical opinion comes from an editorial in *The New England Journal of Medicine* (July 25, 1963): "Early indications of a possible role for the use of fluoride in bone diseases . . . are favourable." The editorial was based on recent reports in medical journals on the use of sodium fluoride in treatment of osteoporosis and Paget's disease, degenerative bone diseases which in some degree affect a high proportion of elderly persons.

These early reports "open up a new and fascinating approach to the treatment of diseases of the bone," the editorial said, although many questions have yet to be answered by research before this treatment is generally adopted. "Although the exact dose has not been accurately determined, it appears that fluoride may be an important bone nutrient."

On fluoridation of the water supply, the journal stated: "Certainly the low dose (1 mg. per day) currently employed in preventing dental caries in children can be extended to include adults in the hope of preventing future osteoporosis."

Public Health

OTTAWA COMMITTEE ENDORSES FLUORIDATION

The Voluntary Committee on Health of the Senate and House of Commons has unanimously recommended fluoridation of water supplies "as an adequate means of preventing dental decay." The action was taken at a regular meeting of the committee on October 17, 1963. The committee is composed of representatives of both houses and includes all physicians, dentists and women members of the two houses.

ORAL CYTODETECTION SERVICE PROPOSED IN B.C.

Officials of the British Columbia Health Branch Division of Preventive Dentistry are working closely with the British Columbia Cancer Institute and other agencies to develop a cancer detection service that will permit the province's dentists to send oral smears to a central laboratory for cytopathological identification. The start of the proposed program hinges on expansion plans for the British Columbia Cancer Institute to provide additional accommodation for cytological services including oral cytodetection facilities. Plans for such expansion were approved by the executive committee of the British Columbia Cancer Foundation late in 1963.

SEEK IMPROVED DENTAL CARE FOR TORONTO INDIGENT, INSTITUTIONALIZED AND HOMEBOUND PATIENTS

A pilot dental service for indigent persons in one area of Metropolitan Toronto could result if a special study now being undertaken by the Social Planning Council of Metropolitan Toronto is successful. In a report (Trends in health services — 1963) the

council notes that only the New Mount Sinai Hospital presently has a comprehensive dental program for indigents, whereas nine other Toronto public hospitals and one private institution restrict their services to extractions and dentures.

The Social Planning Council is a community-wide organization of 400 Toronto United Appeal-related social agencies.

The council has also recommended that dental services be included in Ontario's proposed Medical Services Insurance Act. In a brief submitted to the Medical Services Insurance Enquiry Committee, the council further proposed a pilot study to determine the best way of providing dental care to institutionalized, homebound and low-income persons.

MARTINELLO HEADS ONTARIO PUBLIC HEALTH DENTISTS

B. T. Martinello of Brantford was named chairman of the Ontario Association of Public Health Dentists when that group held their annual meeting in conjunction with the Ontario Public Health Association convention, Toronto, October 1. R. E. Feasby of Toronto is secretary of the group and also representative to the Dental Public Health Committee of the Ontario Dental Association.

NEW APPOINTMENT IN EDMONTON ANNOUNCED

W. A. T. Salter of Victoria, British Columbia, has been appointed director of dental health for the Alberta Department of Public Health, at Edmonton, Alberta. Dr. Salter graduated from the North Pacific Dental College, University of Oregon, in 1944. He received a diploma in dental public health from the University of Toronto in 1959. Since that time Dr. Salter has served as public health dentist with the Greater Victoria school district. Dr. Salter replaces C. W. B. McPhail who recently assumed a full-time appointment at the University of Alberta.

Canadian Dental Schools

UNIVERSITY OF ALBERTA

Dental Hygienists Graduate. — Twenty new dental hygienists joined the health professions in western Canada when members of the 1964 graduating class at the University of Alberta participated in capping exercises on November 8, 1963. Present at the impressive graduation ceremony were Margaret Berry, director, School of Dental Hygiene, University of Alberta; M. J. Lipkind of Calgary, president-elect of the Alberta Dental Association; the Hon. J. Donovan Ross, provincial minister of health; and Dean H. R. MacLean of the Faculty of Dentistry.

UNIVERSITY OF TORONTO

Nikiforuk on Study Leave.—Gordon Nikiforuk, professor of preventive dentistry and chairman of the Division of Dental Research,

Margaret Berry (r.), director of the School of Dental Hygiene, University of Alberta, addresses graduating dental hygienists at a capping ceremony on November 8, 1963. Other dignitaries are (l. to r.) M. J. Lipkind, president-elect of the Alberta Dental Association; J. Donovan Ross, provincial health minister; and H. R. MacLean, faculty dean.

has been granted study leave from January 1 to June 30, 1964 by the University of Toronto. Dr. Nikiforuk will pursue studies at the Institute of Biochemistry and the School of Dentistry in Copenhagen, Denmark; the Department of Biochemistry in Uppsala, Sweden; and at the Karolinska Institute and School of Dentistry in Stockholm, Sweden.

R. M. Grainger will serve as acting chairman of the Division of Dental Research, University of Toronto, during Dr. Nikiforuk's absence.

correspondence

The Journal *devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.*

PHYSIOLOGICAL AND SOCIO-PSYCHOLOGICAL SIGNIFICANCE OF MALOCCLUSION

To the Editor:

Fisk's articulate presentation on this subject in the October 1963 issue of the Journal (29:635) raises some important points which concern thoughtful orthodontists and public health dentists.

The need to study "quantitatively the relationships which may exist between physical defects and the physiological and psychological effects of malocclusion" properly emphasizes a recognized problem of long standing.

Problems arise, it seems to me, when one tries to demonstrate that these correlations in fact exist; we all seem to be convinced of it, but a search for tools by which the impact of psychological trauma from "malocclusion"could be measured has remained fruitless so far. One begins to wonder if we perhaps are naively overestimating the amount of objective substance on which some psychological tests are based.

As far as physiological effects of malocclusion are concerned, our position should be somewhat better; but here too, evidence of direct correlation is yet to come.

The trend of the times is, of course, towards the application of the physical sciences to biological entities. As dentists we have enough of what one might call "engineering background" to readily appreciate this approach; our training induces us to regard nothing but highest precision as the final goal; the trouble is that biological systems often just go on ignoring our efforts.

For the foreseeable future we will not be able to service all those children who want orthodontics, if private practice standards are applied — unless orthodontists switch completely to early treatment with removable appliances and clinic techniques on the European model. This, it seems to me, is unlikely and probably undesirable.

Hence I wonder if motivational studies would produce the answers Fisk is looking for. Our problem does not seem to be lack of demand for orthodontics — whatever the motivation may be — but rather the reverse. Priorities are needed when public or insurance moneys are involved, and for such an eventuality the H.L.D. Index has been suggested.

The argument that 60 per cent of the girls in Fisk's series would have become "false negatives" and be rejected by applying the H.L.D. Index suffers, I think, from a lack of comparability. Doctor Fisk's study population came from private practice; his patients had no trouble buying the care they desired because they could pay for it. But, is it not true that the other 40 per cent "presenting difficult treatment problems requiring extensive and time consuming therapy" are precisely the group in which a handicapping orthodontic deviation could have been demonstrated? As long as we provide dental care through private practice and without third party auspices, it is clear that differences in acceptance level

are justifiable. But many a case is treated in private orthodontic practice for which the expenditure of public or insurance money could not be justified. This is where an objective index is very much needed, and where the concept of the orthodontic handicap as opposed to "malocclusion" comes in; I am not certain that measurements on cephalometric x-ray plates suggested by Ricketts differ in principle from direct measurements on casts or patients. Frankly, I am concerned that the use of cephalometrics may introduce an uncontrolled variable into the measuring process.

In short, the very crudeness of public health indices (such as the H.L.D. Index) which repel the practitioner, are an essential element for their usefulness in a community setting.

In any orthodontic community program, priorities must be established. Based on the extensive experience in the New York State program, it is quite clear that practising orthodontists so far have not supplied valid and objective acceptance standards.

Public health dentists at present have no alternative but to develop priorities and apply formal or informal indices to determine eligibility, just as practising orthodontists retain the privilege of deciding which treatment methods best fit a given case.

L. Draker, D.D.S., M.P.H.,
Evaluation Consultant,
Public Health Research,
Development and Evaluation Group,
New York State Department of Health,
84 Holland Avenue,
Albany 8, New York, U.S.A.

DISCOLORATION OF RESTORATIONS BY FLUORIDE DENTIFRICE

To the Editor:

I am sure that the majority of the profession now know that the application of stannous fluoride to the teeth will discolour synthetic filling materials, turning them black.

Having set up in practice here six months ago, I have noticed a high incidence of darkened and blackened anterior restorations. In each case the patient has not had fluoride applied to the teeth, but has been regularly using a fluoride toothpaste. It would therefore seem that this may be responsible.

Naturally my facilities for research are limited. I am at present conducting laboratory tests, brushing silicate and resin filling materials, placed in an ivory block, with Ipana fluoride, Ipana without fluoride, Crest (fluoride) and Stripe dentifrices. The filling materials are kept wet when not in contact with the toothpaste. I will let you know if I achieve any significant results.

T. D. G. Lyons, B.D.S. (Lond.), L.D.S., R.C.S. (Eng.),
22 William Street West,
Smiths Falls, Ontario.

USE OF LEECHES IN DENTISTRY

To the Editor:

May I have your co-operation to publish this note in the Journal. To add zest to the teaching of dental history, I would like to receive information from persons who may have knowledge of the past use of leeches in connection with any type of dental treatment. Explanation of where and how such treatment was performed would be welcome. If photographs are available, I would request permission to reproduce them and will return them promptly. Letters from contributors will be kept on file for proper credit.

Marcel Hébert, D.D.S.,
Lecturer in Dental History,
Faculty of Dentistry,
McGill University,
Montreal, P. Quebec.

Recruitment Tip • High school graduation time is nearer than we might think. Every guidance counsellor in every high school should soon be visited and presented with at least one copy of *Advantages of Careers in Dentistry.*

book reviews

INLAYS, CROWNS AND BRIDGES: A CLINICAL HANDBOOK

C. R. Cowell, Ivan Curson, G. F. Kantorowicz, D. S. Shovelton and F. I. Whitehead. G. F. Kantorowicz, Ed. Bristol, John Wright & Sons Ltd. (Available from The Macmillan Co. of Canada, Toronto) 174 *p. Illus.* $5.85

According to the first paragraph of the preface, this book deals with the clinical procedures for preparing and fitting inlays, crowns and bridges. It is intended for the senior dental student and for the practitioner who wishes to embark upon more advanced operative procedures. A knowledge of routine conservative dentistry is therefore assumed.

Unfortunately, the authors have filled the initial chapter with such superfluous and elementary material as specifications for casting gold, G. V. Black's classification of cavities, definitions relating to dental anatomy, and so forth. The remainder of the text follows in the same vein describing basic preparations but suggesting techniques which, in North America, have long been considered obsolete.

Throughout the book, the authors have paid only limited attention to such important aspects as onlays, occlusion, articulation, retraction of gingival tissue, dentine and pulp protection, proper method of cementation of restorations, and so forth. The various procedures are mentioned as being necessary but little or no information is supplied regarding methods available to achieve desirable results.

Even more disappointing, however, is the fact that the authors fail to discuss procedures such as the functionally generated path of occlusion and the use of the Verticulator, employment of any type of articulator, and aids such as the Pontostructor or P-M Instrument.

It is the purpose of a book review to appraise, with sincerity, the material presented. In fairness to undergraduate students and Canadian dentists, it must be stated that there are other recently published texts dealing with this subject which will prove more rewarding.

J. L. Storms

OUTLINE OF HISTOLOGY

Gerrit Bevelander. Ed. 5. *St. Louis, C. V. Mosby Co.* 114 *p. Illus.* $5.90

The fifth edition of Bevelander's *Outline of Histology* continues to be useful for a review of the field of histology. It has never been intended as a complete text in the field. The book is particularly useful for dental students because of the fairly lengthy section on the structure and development of teeth.

The text is incomplete in some aspects. It contains no section on the basic structure of cells and the discussion of intercellular substances and tissue fluids is not as complete as the purely descriptive parts of the book.

Illustrations are clear and simple. Some new illustrations have been added to the fifth edition, although the general format and arrangement of the subject matter remains unchanged from the previous edition.

Outline of Histology could advantageously be used as a supplemental text by students engaged in a final review of the course in histology. Of a number of such books now available this remains one of the most valuable.

K. J. Paynter

ORAL ROENTGENOGRAPHIC DIAGNOSIS

E. C. Stafne. Ed. 2. Philadelphia and London, Saunders, 1963. (Available from McAinsh & Co. Ltd., Toronto) 429 p. Illus. $16.20

Although many of the chapters are identical with the first edition, there is so much revised or completely new material and additional radiographs that this second edition can be judged as a new book.

One of the greatest changes appears in the chapter dealing with tumours. Dr. Stafne has used a different classification which includes many more types (with illustrations) than in the first edition.

There is an entirely new chapter dealing with periodontal diseases. This includes

periodontal problems of systemic origin. Another chapter deals entirely with oral manifestations of systemic diseases. Both of these are well illustrated with radiographs.

The sections on temporomandibular joint by J. A. Gibilisco and fractures of the teeth and jawbones by R. J. Gores are excellent additions. Another new section is the appendix covering various radiographic techniques and the processing of films; the latter is contributed by S. A. Lovestedt. M. D. Williams has written the third appendix on health physics including dangers of x-rays and protection for patients and operating personnel.

This is an important reference text in the field of radiology. It is well written and completely illustrated with fine radiographs. Although the first edition appeared as recently as 1958, the author has seen fit to improve an already established book.

G. L. Hancock

additions to the library

BACKLUND, E. Facial growth and the significance of oral habits, mouthbreathing and soft tissues for malocclusion; a study on children around the age of 10. (Acta Odontologica Scandinavica, Vol. 21, Sup. 36.) Stockholm, 1963

BLACKMAN, S. and POYTON, H. G. A manual of dental and oral radiography. Bristol, John Wright & Sons Ltd., 1963. 192 p. illus. $8.10

BRAIN, E. B. and CATE, A. R. Techniques in photomicrography. Edinburgh, Oliver & Boyd, 1963. 147 p. illus. $7.25

BRITISH SOCIETY FOR THE STUDY OF ORTHODONTICS. Transactions, 1962. Bristol, John Wright & Sons Ltd., 1962. 168 p. illus.

CATTONI, M. Manual of periodontics. Houston, University of Texas, 1963. 212 p. illus. Mimeo. $3.00

DENTAL CLINICS OF NORTH AMERICA, November 1963. Symposium on occlusal rehabilitation. Gerard L. Courtade, consulting editor. Philadelphia, W. B. Saunders, 1963. Pages 575-924, illus.

THE HEINEMAN FOUNDATION LABORATORIES. Cardio-pulmonary disease, vol. 7-8, April 1963, pages 371-554, illus. Charlotte Memorial Hospital, Charlotte, N.C.

HEWER, C. L. Recent advances in anaesthesia and analgesia. Ed. 9, London, Churchill, 1963. 358 p. illus. $10.50

KROGER, W. S. Clinical and experimental hypnosis in medicine, dentistry and psychology. Philadelphia, Lippincott, 1963. 361 p. $14.00

OSBORNE, J. Dental mechanic for students. Ed. 5. London, Staples Press, 1963. 439 p. illus. $9.50

PITTSBURGH UNIVERSITY. SCHOOL OF DENTISTRY. Laboratory manual for dental anatomy and operative dentistry. Compiled by Charles F. Brand, and Allan H. Segal. Rev. ed. July 1963. 99 p. illus. $3.00

THOMSON, W. A. R. Black's medical dictionary. Ed. 25. London, Adam & Charles Black, 1963. 1,013 p. illus.

U. S. NAVAL DENTAL SCHOOL. Dental technician, prosthetic. Ed. 4. Washington, Govt. Printing Office, 1962. 355 p. illus. $2.50

U. S. WALTER REED ARMY INSTITUTE OF RESEARCH. DIVISION OF DENTISTRY. Oral surgery; syllabus. Washington (1961?). 954 p. Mimeo.

U. S. WALTER REED ARMY INSTITUTE OF RESEARCH. DIVISION OF DENTISTRY. Prosthodontics; syllabus. Washington (1961?) 340 p. Mimeo.

conventions

Ontario Chapter, Canadian Society of Dentistry for Children meets in Toronto, May 9

The annual scientific meeting of the Ontario Chapter of the Canadian Society of Dentistry for Children will be held at the Royal York Hotel, Toronto, on May 9, 1964. The following program has been arranged:

8.00 A.M. Registration.

9.00 A.M. RALPH MCDONALD, Indiana University: Direct pulp capping; Vital pulpotomy.

10.45 A.M. R. R. HAWES, Eastman Dental Dispensary, Rochester, New York: Indirect pulpotomy.

12.30 P.M. Luncheon. Speaker: W. J. DUNN, Registrar-Secretary-Treasurer, Royal College of Dental Surgeons of Ontario.

2.00 P.M. RALPH MCDONALD: Non-vital pulpotomy.

3.45 P.M. E. R. W. BILKEY and D. L. RIFE, Toronto: Procedures designed to protect and reinforce non-vital teeth.

in memoriam

DOUGLAS TREVOR BELK—Dr. D. T. Belk of Winnipeg died on October 9, 1963. He was 29. Dr. Belk was born in Sheffield, England, in 1934. Following graduation from Sheffield University in 1959, he served as an assistant lecturer. In 1961 he came to Canada and settled in Winnipeg. Dr. Belk is survived by his wife, Christine Ann.

EDWIN HARRISON CLARK—Dr. E. H. Clark of Minnedosa, Manitoba, died on October 24, 1963. He was 75. Dr. Clark is survived by his wife, Frances; two sons, Mac and Douglas; a sister, Mrs. A. Everett of Washington; a brother, Walter of Manitoba; and three grandchildren.

BERTRAM REUBEN GARDINER—Dr. B. R. Gardiner of Orillia, Ontario, died on November 4, 1963. He was 71. Dr. Gardiner graduated from the Royal College of Dental Surgeons of Ontario in 1914. During World War I he served with the Canadian Army Dental Corps and the Canadian Expeditionary Forces. Dr. Gardiner is survived by his wife, Mary, and two daughters, Mrs. R. Thompson of Toronto and Mrs. R. Scott of Boston, Massachusetts.

WILLIAM RYERSON GLOVER—Dr. W. R. Glover of Kingston, Ontario, died on August 18, 1963. He was 89. Dr. Glover was born in Camden East, Ontario, in 1874 and graduated from the Royal College of Dental Surgeons of Ontario in 1906. He practised in Brighton until 1909 when he went to Kingston. He was active in the Kingston and District Dental Society, serving as secretary-treasurer from 1938 until 1939 and president from 1939 until 1940. Dr. Glover is survived by two daughters, Mrs. F. L. Curtin and Marion Glover, both of Kingston.

JOSEPH ROMEO GROULX—Le Dr J. R. Groulx de Montréal, âgé de 60 ans, est décédé le 20 octobre, 1963. Il était né à Montréal en 1902 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1925. Lui survivent sa femme, Florence; ses deux filles, Mme J. Valois

et Mme M. Robitaille; trois sœurs, Mme P. Gagnon, Mme J. C. Joannette, et Mme O. O'Reilly; et huit petits-enfants.

STANLEY RODGERS DICKSON — Dr. S. R. Dickson of Brandon, Manitoba, died on July 25, 1963. He was 67. Dr. Dickson was born in Brandon in 1896 and graduated from the Royal College of Dental Surgeons of Ontario in 1919.

HAROLD ANTHONY HARTFORD—Dr. H. A. Hartford of Owen Sound, Ontario, died on October 4, 1963. He was 67. Dr. Hartford was born in Owen Sound in 1896. Following his graduation from the Royal College of Dental Surgeons of Ontario he practised in Toronto and Detroit. In 1928 he returned to Owen Sound where he practised until his death. Dr. Hartford served as secretary of the Owen Sound Dental Society from 1928 until 1929, and as secretary of the Grey and Bruce Dental Society from 1935 to 1936. He is survived by two brothers, L. C. Hartford of Detroit and J. J. Hartford of Owen Sound, and one sister, Mrs. P. Healy of Owen Sound.

ROY GORDON HEMMERICH—Dr. R. G. Hemmerich of Kitchener, Ontario, died on October 5, 1963. He was 60. Dr. Hemmerich was born in Wellington County, Ontario, in 1903. He attended Galt Collegiate and graduated from the Royal College of Dental Surgeons of Ontario in 1927. Dr. Hemmerich served with the Canadian infantry, engineers, and Canadian Army Dental Corps in World War I. He pioneered dental care for Arctic residents. In 1949 he inaugurated dental care in far northern areas at the request of the federal government. Dr. Hemmerich was a former president of the Inter County Dental Society. Besides his wife, Onnerene, he is survived by a son, Bruce G. of Kitchener; one daughter, Mrs. Wm. Green of Ottawa; and a sister, Mrs. D. Wismer of Preston, Ontario.

NORMAN JAMES HISCOX—Dr. N. J. Hiscox of Collingwood, Ontario, died on October 25, 1963. He was 55. Dr. Hiscox was born in Brampton, Ontario, in 1908. Following graduation from the University of Toronto in 1931, Dr. Hiscox practised in Stratford until 1935. He then went to Mitchell where he remained until the outbreak of World War II in 1939. He served with the Canadian Dental Corps until 1945 when he went to Collingwood. Dr. Hiscox is survived by his wife, Evelyn V.; two sons, James L. and Robert N.; his father, Norman Hiscox of Woodstock; a sister, Mrs. N. Reid of Ottawa; and a brother, Jack of Woodstock.

HARRY HOFFER—Dr. H. Hoffer of Regina, Saskatchewan, died on November 4, 1963. He was 74. Dr. Hoffer was born in Montreal in 1889. He received his early education in Winnipeg and graduated from the University of Pittsburgh in 1922. Following graduation he practised in Prelate, Saskatchewan, moving later to Leader and Regina. Dr. Hoffer is survived by his wife, Rose; one daughter, Mrs. Corinne Raynes; a son, Douglas; two brothers, Arthur and Peter; and a sister, Miss Ella Hoffer.

GRENVILLE A. KERR—Dr. G. A. Kerr of Winnipeg died on October 24, 1963. He was 63. Dr. Kerr was born in Gladstone, Manitoba, in 1900. He graduated from the Royal College of Dental Surgeons of Ontario in 1922 and practised in Gladstone and Roblin. During World War II he served for four years with the Canadian Dental Corps. Following his discharge he was employed by the Manitoba Department of Health conducting dental clinics for children throughout the province. Dr. Kerr is survived by his wife, Margaret; three sisters, Mrs. H. Gainer of Edmonton, Mrs. S. Gillespie of Portage La Prairie and Mrs. Peggy Bowen of Ottawa; and a brother, Melford of Edmonton.

GEORGES LAURENCELLE—Le Dr G. Laurencelle de Charette, P. Québec, âgé de 68 ans, est décédé le 4 octobre, 1963. Il était né en 1895 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1923. Il exerçait pendant plusieurs années à Shawinigan. Lui survivent sa femme, Marie-Ange; un frère, Jules; et une sœur, Germaine.

STEPHEN JOSEPH LESCO—Dr. S. J. Lesco of Orillia, Ontario, died on October 27, 1963. He was 68. Dr. Lesco was born in Esterhazy, Saskatchewan, in 1895. He attended school in St. Boniface, Manitoba, and later graduated as a teacher. After teaching for some years in Esterhazy, he attended the Royal College of Dental Surgeons of Ontario, graduating in 1925. He practised in Toronto until 1954 when he went to Orillia. Dr. Lesco is survived by his wife, Coreta; one son, Frederick; a daughter, Mrs. D. De Silva; and four sisters and one brother.

D. MELVIN LIVINGSTONE—Dr. D. M. Livingstone of Transcona, Manitoba, died on September 25, 1963. He was 68. Dr. Livingstone was born in the province of Saskatchewan in 1894 and graduated from Northwestern University, Chicago, in 1923.

announcements

CANADIAN DENTAL ASSOCIATION		FÉDÉRATION DENTAIRE INTERNATIONALE		
1964	Edmonton	June 28-July 1	San Francisco	November 9-12
1965	Quebec City	May 30-June 2	Vienna	June 26-July 3
1966	Halifax	June 12-15	Israel	
1967	Toronto	May 14-17	Paris	

FUTURE EVENTS

Date	*Function*	*Location*	*Officer*	*Address*
Feb. 1-8, 1964	Third Caribbean Dental Convention	Trinidad Hilton Hotel, Port-of-Spain, Trinidad	Dr. A. V. Awon	43-45 Frederick Street, Port-of-Spain, Trinidad
Mar. 1-7, 1964	First Ibero-American Endodontic Congress	National University, Mexico City	Dr. F. Romero Castany	Calle Hamburgo 250, México 6, D.F., Mexico
Mar. 21-31, 1964	Fourth Asian-Pacific Dental Congress	Singapore and Malaya	Dr. B. B. Erãna	P.O. Box 373, Manila, Philippines
May 9, 1964	Canadian Society of Dentistry for Children, Ontario Chapter	Royal York Hotel, Toronto	Dr. W. J. Simpson	844 Victoria Ave., Niagara Falls, Ont.
May 10-13, 1964	Ontario Dental Association	Royal York Hotel, Toronto	Mrs. W. C. Durham	230 St. George St., Toronto 5, Ont.
May 21-23, 1964	British Columbia Dental Association	Queen Elizabeth Theatre, Vancouver	Dr. W. R. Upton	325-925 West Georgia St., Vancouver, B.C.
May 25-29, 1964	17th Australian Dental Congress	Perth, Western Australia	Dr. K. F. Henderson	242 St. George's Terrace, Perth, Western Australia

POSTGRADUATE AND REFRESHER COURSES

TORONTO—The Department of Dental Oral Surgery and Anaesthesia, Faculty of Dentistry, University of Toronto offers a postgraduate course in ORAL SURGERY, April 20-24, 1964. Management of surgical problems met by the general practitioner will form the basis for this review of the general principles of surgery. Instruction will be given in anaesthesia for dental operations. Sessions will be devoted to diagnosis, systemic factors relating to oral surgery, chemo-therapy and pre- and post-operative case management. Specific problems discussed will include jaw fractures, sinus involvements, cysts, root resection, abnormal fraena, malposed and impacted teeth, cellulitis and deep neck infections. This course will be directed by A. A. Antoni. Tuition fee $100. Enquiries and requests for application forms should be directed to the Chairman, Division of Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

COLUMBIA—March 2-4, 1964—Temporomandibular Joint Disorders

COLUMBIA—March 4-6, 1964—Applied Roentgenographic Cephalometry

MICHIGAN—March 2-4, 1964—Fundamental Treatment Principles Utilizing the Edgewise Arch

MICHIGAN—March 2-6, 1964—Gold Inlay Restorations

MICHIGAN—March 2-13, 1964—Crown and Bridge Prosthesis

MICHIGAN—March 2-13, 1964—Endodontics

MICHIGAN—March 9-20, 1964—Partial Denture Prosthesis

MICHIGAN—March 16-17, 1964—Control of Apprehension and Pain in Dentistry for Children

MICHIGAN—March 16-20, 1964—Dental Practice Administration

NORTHWESTERN—March 9-10, 1964—Management of Advanced Periodontal Disease

NORTHWESTERN—March 23-26, 1964—Complete and Partial Denture Procedures

OHIO—March 2-6, 1964—Endodontics

TEMPLE—March 11, 1964—Paedodontics

TEMPLE—March 16-20, 1964—Advanced Surgical Techniques in Periodontal Therapy

WESTERN RESERVE—March 21-22, 1964—Endodontics

Note • Due to lack of space the Journal cannot accommodate all announcements of foreign dental meetings and postgraduate and refresher courses. Readers are invited to write to C.D.A. headquarters for information concerning unlisted meetings and courses. Further information concerning listed meetings and courses should be sought from the sponsoring institution.

cda retirement savings plan
plan d'épargne-retraite adc

Statement as of November 30, 1963

Relevé au 30 novembre 1963

The Canadian Dental Association Retirement Savings Plan provides dentists in Canada with a flexible method of investing savings on which they may obtain tax deferment. Three separate investment funds are available to participants namely a Government Bond Fund, a Corporate Bond Fund and a Common Stock Fund.

GOVERNMENT BOND FUND

The Government Bond Fund is invested in Canada, provincial, and municipal bonds and mortgages guaranteed under the National Housing Act. The unit price reflects accumulated income and fluctuations in interest rates.

Market value of fund	$330,127
Unit value of fund	$12.521

CORPORATE BOND FUND

The Corporate Bond Fund is invested in fixed income obligations of companies incorporated in Canada, the United States or the United Kingdom and in conventional mortgages. The unit price reflects accumulated income and fluctuations in interest rates.

Market value of fund	$603,990
Unit value of fund	$13.237

COMMON STOCK FUND

The Common Stock Fund provides a medium for investing in equities and for participating in the long-term growth of the economy. The unit value reflects changes in the stock market prices and the general economic conditions together with accumulated income.

Market value of fund	$1,538,328
Unit value of fund	$16.040

Further information can be obtained from the Canadian Dental Association Retirement Savings Plan, 2249 Yonge Street, Toronto 7, Ontario or from the nearest branch of the Royal Trust Company.

Le programme d'épargne-retraite de l'Association dentaire canadienne procure aux dentistes du Canada un moyen souple de placer leurs épargnes tout en bénéficiant d'un retardement d'impôt. Trois fonds de placements distincts sont à leur disposition, à savoir: un fonds d'obligations gouvernementales, un fonds d'obligations corporatives et un fonds d'actions ordinaires. Les participants peuvent varier leurs contributions entre les fonds, ou encore effectuer le transfert d'un fonds à un autre sans être sujets à l'impôt.

FONDS D'OBLIGATIONS GOUVERNEMENTALES

Le fonds d'obligations gouvernementales est investi dans des obligations et débentures du Canada ou garanties par celui, d'une province du Canada ou d'une municipalité et d'hypothèques garanties en vertu de la Loi nationale sur l'habitation. Le prix unitaire reflète le revenue accumulé et les fluctuations des taux d'intérêt.

Valeur du fonds au marché	$330,127
Valeur unitaire du fonds	$12.521

FONDS D'OBLIGATIONS CORPORATIVES

Le fonds d'obligations corporatives est placé dans des obligations à revenu fixe de sociétés incorporées au Canada, aux Etats-Unis ou dans le Royaume-Uni et dans des hypothèques conventionnelles. Le prix unitaire reflète le revenu accumulé et les fluctuations de taux d'intérêt.

Valeur du fonds au marché	$603,990
Valeur unitaire du fonds	$13.237

FONDS D'ACTIONS ORDINAIRES

Le fonds d'actions ordinaires procure un moyen de placement sous forme d'avoir et de participation dans la croissance à long terme de l'économie. Les placements dans des sociétés canadiennes prédominent mais des investissements peuvent être faits à l'extérieur du Canada afin de profiter d'occasions particulièrement intéressantes. La valeur unitaire reflète les fluctuations des prix du marché, la situation économique générale ainsi que le revenu accumulé.

Valeur du fonds au marché	$1,538,328
Valeur unitaire du fonds	$16.040

On peut obtenir d'autres renseignements en s'adressant au Plan d'épargne-retraite de l'Association dentaire canadienne, 2249 rue Yonge, Toronto 7, Ontario ou à la succursale la plus rapprochée de la Royal Trust Company.

Common stock fund as at November 30, 1963 • Fonds d'actions ordinaires au 30 novembre 1963

Description	Number of shares Nombre d'actions	Value Valeur
Canadian stocks • Actions ordinaires canadiennes		
Banks, Trust and Mortgage Companies • Banques, compagnies de fiducie et de prêts hypothécaires		
Bank of Montreal	800	$ 50,500
Bank of Nova Scotia	550	39,325
Royal Bank of Canada	550	40,288
Huron and Erie Mortgage	1,200	80,400
Beverages • Breuvages		
Canadian Breweries	4,700	47,000
Hiram Walker—Gooderham & Worts	1,200	70,800
Finance and Loan • Compagnies de prêts et finance		
Industrial Acceptance	1,600	37,200
Forest Products • Produits forestiers		
Dominion Tar & Chemicals	1,500	25,688
Great Lakes Paper	1,000	22,500
MacMillan, Bloedel & Powell River	1,500	37,500
Iron and Steel • Industrie lourde et de l'acier		
Algoma Steel	1,000	58,000
Steel Company of Canada	2,200	49,500
Merchandising • Détaillants		
Simpsons	585	20,475
Geo. Weston, Class "B"	1,650	25,575
Metals • Métaux		
International Nickel	800	54,400
Miscellaneous • Divers		
Massey Ferguson	2,000	31,750
Moore Corporation	1,200	59,700
Southam	1,300	38,350
Pipelines		
Interprovincial Pipelines	700	57,050
Trans-Canada Pipe Lines	1,300	41,113
Electric Utilities • Electricité		
Calgary Power	2,000	40,750
International Utilities	1,800	42,075
Gas distribution • Distribution de gaz		
Consumers' Gas	6,000	71,250
Telephone • Téléphone		
Bell Telephone	800	43,200
Total		1,084,389
Foreign stocks • Actions ordinaires étrangères		
Aviation		
North American Aviation	700	40,494
Chemicals • Produits chimiques		
W. R. Grace	1,000	47,195
Hercules Powder	1,000	38,161
Monsanto Chemicals	785	46,257
Electrical products • Produits électriques		
General Electric	220	19,579
Insurance • Assurance		
Insurance Co. of North America	300	29,207
Lincoln National Life	200	36,354
Miscellaneous • Divers		
I.B.M.	130	68,050
Petroleum • Pétroles		
Royal Dutch Petroleum Co.	1,000	52,050
Telephone • Téléphone		
American Telephone and Telegraph	300	44,660
Total		422,007
Total securities • Valeur totale		$1,506,396
Cash and short term investments • En caisse et placements à courte échéance		31,932
Total value • Valeur global		1,538,328

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Quelques aspects de la recherche de base en odonto-stomatologie

par G. Cimasoni, Genève, Suisse*

Dents et carie dentaire

Parmi les éléments entrant dans la constitution des tissus dentaires, deux en particulier sont à considérer:

(a) le collagène: il est un des éléments prédominants du tissu pulpaire et forme la plus grande partie du composant organique de la dentine et du cément. Sa composition en acides aminés est connue et ne diffère guère de celle du collagène que l'on retrouve dans l'os et dans d'autres parties de l'organisme. Au microscope électronique, la striation caractéristique de ses fibres (640 A) a également confirmé cette similitude.

Le problème de la nature des constituants organiques de l'émail est par contre encore sujet à controverses (collagène? kératine?);

(b) l'élément minéral: il est représenté, au niveau de l'émail, de la dentine et du cément par des cristaux d'hydroxylapatite [Ca_{10} $(PO_4)_6$ $(OH)_2$], identiques à ceux de l'os, avec des proportions variables selon le tissu. A l'intérieur ou entre les mailles élémentaires de l'apatite, on

*Attaché de recherches à l'Institut de médecine dentaire, Université de Genève.

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trouve de multiples ions, autres que Ca, PO_4, OH, CO_3, citrate, Mg, Sr, F, etc.

Il est intéressant de constater que la continuité apparente de ces éléments ultrastructuraux, communs aux différents tissus dentaires, trouve son pendant dans des considérations d'ordre physiologique: Sognnaes, en 1952, avait démontré que différents ions radio-actifs, injectés par voie intraveineuse chez l'animal, apparaissent à brève échéance dans un milieu liquide enfermé hermétiquement dans une cupule autour de la couronne d'une dent. Vice versa, de l'iode-131 introduit dans ce milieu, toujours à l'abri complet de la salive, pouvait être détecté au bout d'un certain temps au niveau de la thyroïde de l'animal.

Par des techniques laborieuses de prélèvement et des analyses chimiques quantitatives de couches successives d'émail, de la surface vers la jonction adamantino-dentaire, Isaac et ses collaborateurs confirmèrent les observations de Sognnaes, en prouvant que plusieurs ions (entre autres F) ont une concentration décroissante de la surface vers l'intérieur. Au niveau de la dentine, la situation est inversée, la concentration ionique la plus haute se situant près de la cavité pulpaire et la plus basse au voisinage de la jonction adamantino-dentinaire. En outre, il a été prouvé que la concentration d'ions étrangers dans ces différentes couches augmente avec l'âge (concept de "maturation" des tissus dentaires durs). Le mécanisme de cet enrichissement est en grande partie dû à un phénomène d'échange ionique: il est connu que des poudres d'os, d'apatite synthétique, de dentine ou d'émail placées dans une solution contenant du P^{32} emmagasinent au bout de quelques heures une certaine fraction (maximum pour l'os et moindre pour l'émail) de l'élément radio-actif, la quantité totale de P en solution restant inchangée.

Récemment, un auteur suédois a pu démontrer sur la surface de dents fraîchement extraites la formation de gouttelettes d'eau, provenant de l'intérieur de l'émail par une voie non encore élucidée.

En résumé donc, on a démontré l'existence d'un courant dans le sens sang-pulpe-dentine-émail et vice versa, avec possibilité d'enrichissement, par échange, avec des ions étrangers, enrichissement augmentant avec l'âge, plus accentué dans les couches internes de la dentine (près de la pulpe) et dans les couches externes de l'émail (au voisinage de la salive).

La vitalité de la dent est une condition essentielle pour assurer de telles qualités structurales et fonctionnelles.

Ces études sont fondamentales pour la compréhension du mécanisme de la carie dentaire et de son éventuelle prophylaxie.

Dans l'étiologie des lésions de carie, on distingue plusieurs groupes de facteurs: micro-organismes, nutrition, hérédité, autres facteurs.

Micro-organismes.—En 1942, Arnold, des National Institutes of Health (Washington) avait observé que des groupes de hamsters, qui n'avaient jamais présenté de caries, commençaient à développer ces lésions au moment où ils étaient introduits dans des cages déjà occupées par des hamsters non résistants à la carie. La nécessité d'isoler et d'identifier les différents types de micro-organismes capables de provoquer des lésions nécessita l'emploi d'appareillages maintenant assez répandus aux USA et en Suède: les "germ-free units," qui permettent d'élever de petits animaux de laboratoire dans des conditions d'absence totale de micro-organismes. Les animaux nés et élevés dans ces conditions ne développent jamais de lésions carieuses. Quels sont ces micro-organismes, où se trouvent-ils et quel est leur mode d'action?

Il est reconnu qu'une carie débute sous une "plaque" de bactéries adhérente à la surface de l'émail. Les plaques contiennent une grande variété de micro-organismes, entre autres des streptocoques et lactobacilles; ces bactéries, en conditions d'anaérobiose transforment, par glycolyse, les hydrates de carbone en acide pyruvique qui fonctionne comme accepteur direct d'hydrogène, au cours du phénomène d'oxydation biologique productrice d'énergie et se transforme en

acide lactique. Le pH au niveau de la surface de l'émail située sous une plaque peut être abaissé de deux unités en l'espace de deux à cinq minutes, après l'introduction d'une solution de sucrose à 5 pour cent dans la cavité buccale.

Il est donc évident que la baisse de pH responsable du début d'une déminéralisation de la surface de l'émail se situe non pas, comme on a souvent cru, dans l'ensemble de la cavité buccale (par exemple après l'injection de boissons acides), mais bien au niveau des plaques de bactéries, dont les conditions de vie seront garanties entre autres par un apport massif de sucres, un dépôt de substances adhérentes et l'insuffisance du courant salivaire.

La destruction de la trame organique suit probablement l'attaque primaire de la partie minérale par le milieu acide.

Chez l'animal, il a été possible de faire apparaître des caries en présences d'un seul types de micro-organisme (entérocoque).

Ces mêmes genres d'études s'étendent actuellement à d'autres animaux, notamment au singe qui possède une flore cariogène directement comparable à celle de l'homme.

Facteurs de nutrition.—Comme le paragraphe précédent le souligne, le rôle des sucres dans l'étiologie de la carie est un fait scientifiquement prouvé. Les hydrates de carbone ne représentent cependant pas le seul facteur de nutrition responsable de l'apparition de lésions: les protéines et certains éléments minéraux jouent aussi un rôle.

En 1952, McClure provoqua l'apparition de caries chez le rat en administrant une diète avec un taux d'hydrates de carbone non cariogène, mais déficiente du point de vue protéines. Quand un acide aminé essentiel (lysine) était ajouté à la diète, les animaux restaient indemnes de caries.

Quant aux éléments minéraux, déjà en 1931 Klein et McCollum avaient signalé que l'adjonction de phosphate disodique à une diète cariogène entraînait une diminution de la quantité de caries chez l'animal. Par la suite, plusieurs travaux, entre autres ceux de König et ses collaborateurs (Zurich), confirmèrent cette observation. Le mode d'action du supplément minéral dans la prévention de la carie est encore sujet de discussions: il n'est en tout cas pas à rechercher dans les variations de la composition des tissus dentaires durs que les minéraux figurant dans le régime peuvent entraîner.

Hérédité.—Chez le rat, par croisements successifs d'animaux consanguins présentant un pourcentage respectivement élevé et faible de caries, il a été possible de sélectionner des souches non résistantes et résistantes à la carie. Dans une des premières expériences, après 19 générations successives, on a pu obtenir une souche résistante avec un "temps-carie" (nombre moyen de jours nécessaires pour voir apparaître les premières lésions avec une diète cariogène) de cinq cent cinquante-deux jours et une souche non résistante avec un temps-carie de vingt-neuf jours. Différentes diètes cariogènes ont été employées. Les causes des différences obtenues entre ces souches résident, en partie, dans des variations de la flore buccale persistante d'une génération à l'autre.

Autres facteurs. — D'autres facteurs (salive, morphologie dentaire, etc.) ne seront pas discutés dans cet exposé.

Tissus de soutien (parodontium) et maladies parodontales

Notre discussion sera limitée à quelques observations concernant le revêtement épithélial et le ligament alvéolo-dentaire; la complexité de leur structure, de leurs relations mutuelles et de leur pathologie est suffisante pour illustrer la difficulté du problème qui intéresse le chercheur.

Revêtement épithélial. — L'épithélium d'une gencive saine s'insère sur la surface de l'émail par l'intermédiaire de l'épithélium adamantin. Ce dernier est collé à la surface de l'émail du germe dentaire avant son éruption: il représente un reste de l'organe adamantin, d'origine ectoder-

mique, qui a élaboré l'émail lors de la formation du germe.

Récemment, Cohen a prouvé qu'en détruisant chirurgicalement l'épithélium adamantin chez le singe avant l'éruption d'une dent, l'attachement normal de l'épithélium sur la surface de l'émail ne peut plus se faire. Sur des coupes histologiques de dents normales décalcifiées avec conservation de la trame organique de l'émail, cet auteur a montré des prolongements s'étendant de l'épithélium adamantin vers l'intérieur de la masse de l'émail. Ces prolongements pourraient représenter les tonofibrilles que Baume a décrites en 1953, ou encore des substances de nature polysaccharidique.

Les modifications inhérentes à la décalcification des pièces nous obligent à être très prudents dans l'interprétation des images que fournissent les méthodes histochimiques appliquées à ces tissus: nous avons récemment décrit l'existence d'une couche de mucopolysaccharides au niveau de la zone de réinsertion de l'épithélium gingival sur la surface dentinaire, six semaines après l'intervention chirurgicale comportant le décollement et la réapposition d'un lambeau de tissu gingival chez l'homme. La nette réversibilité de la coloration sur des coupes en série par traitement avec l'enzyme hyaluronidase testiculaire a confirmé le diagnostic de substance mucopolysaccharidique.

La présence de mucopolysaccharides acides dans les espaces intercellulaires de l'épithélium gingival a été prouvée par plusieurs auteurs. L'intérêt que connaît actuellement l'étude des mucoprotéines et mucopolysaccharides dans les structures gingivales est stimulé par des considérations d'ordre pratique: Schultz-Haudt et ses collaborateurs ont en effet démontré la présence d'enzymes mucolytiques dans des extraits de produits de raclage de gencive. De plus, Aisenberg et Aisenberg ont prouvé que l'introduction de hyaluronidase testiculaire dans les poches gingivales de singes provoque une gingivite, et finalement Lisanti a établi l'existence d'une corrélation positive entre l'activité de la hyaluronidase salivaire et la gravité des lésions parodontales chez l'homme.

Puisque le début de la formation d'une poche parodontale (premier pas vers l'exfoliation finale de la dent) se manifeste au niveau des structures épithéliales attachées aux tissus dentaires durs, l'hypothèse d'une action initiale enzimatique sur les mucopolysaccharides gingivaux est donc vraisemblable.

Ligaments alvéolo-dentaires (desmodonte). — L'élément structural prédominant des ligaments alvéolo-dentaires est le collagène, la proportion de fibres élastiques étant minime. Il est intéressant de souligner que des contributions importantes aux études de la composition chimique et de la structure du collagène émanent de centres de recherches dentaires (travaux de Piez, Scott, etc.).

Récemment un troisième type de fibres (oxytalan) a été décrit par Fullmer au niveau des ligaments alvéolo-dentaires; ces fibres auraient des propriétés de colorabilité légèrement différentes de celles élastiques et se trouveraient dans des zones que l'on croyait occupées seulement par du collagène. Elles sont plus abondantes dans la zone immédiatement sous-jacente à l'attachement épithélial ("stress" mécanique?).

Lors de la formation d'une poche parodontale, les ligaments sont progressivement détruits: leur vulnérabilité par des collagénases bactériennes a été démontrée par les travaux de Mergenhagen et Scherp. Ces auteurs ont mis au point une technique qui permet de mesurer in vitro l'activité collagénasique de micro-organismes par la diminution du collagène total présent, plutôt que par la détermination classique de la quantité d'hydroxyproline dans la fraction lysée, hydroxyproline qui peut précisément être détruite en présence de micro-organismes. Ils ont ainsi pu démontrer que des cultures obtenues avec des produits de raclage de gencive humaine, contenant une flore microbienne mixte, produisent une lyse du collagène in vitro.

Ces observations fondamentales sont

actuellement le point de départ d'études semblables, utilisant des micro-organismes isolés: par exemple Mac Donald et Gibbons ont démontré la capacité collagénolytique de "bacteroides melanogenicus" gram négatif, que l'on trouve communément dans la région du collet dentaire.

Ce bref exposé, limité à quelques points particuliers, a rempli son but s'il a attiré l'attention du dentiste et du médecin sur les contributions que peuvent apporter aux progrès de l'odonto-stomatologie les recherches de base qui subissent actuellement un développement rapide.

SUMMARY

The author reviews recently published findings on the morpho-physiological and pathological aspects of dental caries and periodontal disease. He discusses microorganisms, nutrition and heredity as factors in dental caries. He comments on changes in the epithelial attachment and dento-alveolor ligament to illustrate aspects of periodontal disease.

résumés

SOULAGEMENT DE L'HYPERSENSIBILITÉ AUX VARIATIONS THERMIQUES

W. S. Monica. D. Progress 3:164, 1963.

Cette expérience rapporte les cas de vingt-et-un patients qui furent traités avec l'alpha-amylase buccal pour des hypersensibilités aux variations thermiques. Tous présentaient, à divers degrés, un déchaussement de la gencive; ce déchaussement invite les irritations de la pulpe et y détermine parfois une inflammation; il en résulte une douleur au contact des variations thermiques produites par la nourriture, les breuvages et les dentifrices. L'alpha-amylase est une enzyme anti-inflammatoire qui supprime l'exudat pulpaire, réduit la chaleur intérieure et élève le seuil de la douleur.

Seize patients, qui souffraient de léger déchaussement, étaient soulagés six mois après le traitement. Deux ont nécessité un ou deux traitements supplémentaires. Trois patients qui souffraient de déchaussement considérable n'ont pas éprouvé de soulagement.

LA MATRICE VIVANTE DE LA PLAQUE DENTAIRE

J. D. Wildman. D.Progress 3:183, 1963.

La plaque dentaire continue à intriguer les chercheurs et les praticiens. L'auteur offre une théorie intéressante qui voudrait que le matériel intermicrobien ou le matériel qui y séjourne soit une substance vivante. Les structures de différentes formes apparaissent dans des coupes de plaques s'expliquent en se basant sur cette théorie. Il faudrait, pour prouver cette théorie, attendre une nouvelle méthodologie pour étudier le métabolisme compliqué qui permettrait aux microbes et au matériel intermicrobien de se conserver vivants. On ne peut pas prévoir maintenant les implications que peut avoir cette théorie sur la carie et sur les maladies péridentaires.

page éditoriale

Les professions sur la sellette

Le juge Edson L. Haines, ancien aviseur légal de l'Association médicale d'Ontario, a prononcé, le 6 mai dernier, une conférence devant la Société médico-légale de Toronto. Cette causerie[1] est comme un son de cloche d'avertissement aux professions au sein du climat social dans lequel nous vivons. Elle résume l'examen de conscience que doivent faire les groupements professionnels pour accorder leur état d'esprit à celui du public de 1963.

L'opinion publique est un fait — un fait que tout professionnel doit reconnaître. Un médecin, un dentiste, un avocat ne peut se permettre d'ignorer ce que pense à son sujet l'homme de la rue. Les conseillers en relations extérieures dépensent des sommes colossales pour découvrir et parfois façonner l'opinion publique. Les politiciens, comme de raison, se plient aux exigences de l'opinion publique. Les professionnels, pour prodiguer des services efficaces, doivent aussi connaître la réaction qu'ils suscitent collectivement dans la population.

Il ne faut pas s'attendre à ce que le public se contente de ce que nous lui offrons. Aujourd'hui, les citoyens réalisent qu'ils ont contribué par leurs impôts à la formation du professionnel, car les frais de scolarité que celui-ci a versé pour son cours d'études ne représente qu'une fraction des dépenses effectuées pour lui par les universités.

Que cela nous plaise ou non, les professions doivent rendre des comptes. Comment répondons-nous aux besoins de la population? Nos services sont-ils faciles d'accès et au prix d'honoraires que peuvent payer ceux qui les sollicitent. Les temps sont révolus où les populations étaient dispersées dans les campagnes. Les habitants du Canada ont émigré en grand nombre dans les villes et le citadin—grâce aux unions ouvrières—est plus éveillé aux problèmes sociaux et il souhaite des réformes qui touchent son bien-être et sa santé.

Les politiciens, pour la plupart, veulent rester au pouvoir à tout prix et ils tendent l'oreille aux doléances des voteurs qui veulent des réformes sociales et qui savent s'unir pour les obtenir.

Les syndicats considèrent aujourd'hui les professionnels comme des individus ordinaires doués de qualifications spéciales.

Notre pays dépense des millions pour se préparer à la guerre et d'autres millions pour aider les pays sous-développés. On nous répète à satiété que le standard de vie au Canada est d'une qualité extraordinaire et que nous vivons dans un climat de liberté inviolable. Avons-nous raison de croire que notre pays jouit d'une aisance confortable quand de grands secteurs de notre population n'ont pas les moyens de se faire soigner convenablement. Quel réconfort les individus qui ne peuvent pas payer les honoraires du dentiste, par exemple, retirent-ils de savoir qu'ils pourraient bénéficier des progrès de la science, s'ils en avaient les moyens. Cette situation crée chez eux un sentiment

de frustration qui les porte à penser qu'au Canada la vie est bonne pour ceux qui possèdent et que cette liberté et que ce standard de vie tant vantés ne sont que des balivernes!

On a fait, au prix d'efforts inouis et de sommes d'argent considérables, l'éducation dentaire du public. Par ailleurs, la population de notre pays, grâce aux moyens contemporains de diffusion et de communication, apprend, le lendemain de leur réalisation, les progrès de la science. Nos concitoyens sont plus instruits et plus exigeants au sujet des traitements dentaires.

On peut se demander si la profession dentaire n'aurait pas dû, tout en entreprenant ses campagnes d'hygiène dentaire, songer parallèlement à satisfaire d'une façon économique les besoins qu'elle a fait découvrir au public.

Aussi, le juge Haines fait-il deux suggestions aux professions organisées: (1) les professions doivent trouver des moyens et des façons d'aider leurs membres à prodiguer des services plus rapidement et à meilleur compte; (2) les professions doivent assumer la responsabilité de voir à ce que tous les services soient prodigués et prendre l'initiative de résoudre les problèmes de coût et de paiement.

Si la profession ne trouve pas les solutions à ces problèmes du volume des traitements à prodiguer et de leur coût, des organismes étrangers à la profession—les gouvernements, les syndicats, des sociologues et qui sais-je—les proposeront à sa place et ces solutions ne seront peut-être pas toujours dans l'intérêt du public et dans celui de la profession.

Le nœud du problème se situe dans la population actuelle et non dans celle qui existera dans vingt-cinq ou cinquante ans. A ce moment-là, la fluoration et les résultats des recherches auront solutionné en grande partie la question. C'est maintenant qu'il faut proposer des moyens pour prendre soin de l'accumulation énorme de soins de toutes sortes qui n'ont pas été donnés et que le public veut maintenant recevoir et — à bon compte.

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G. de M.

La langue française dans le monde • Saviez-vous que la langue française occupe aujourd'hui le premier rang dans le monde si l'on considère le nombre de nations dont elle constitue la langue officielle ou encore l'une des deux ou trois langues officielles. Ces nations sont actuellement au nombre de 25, à savoir: quatre en Europe (Belgique, France, Luxembourg et Suisse), deux en Amérique (Canada et Haïti), 19 en Afrique et dans l'Océan Indien (Cameroun, République Centrafricaine, Congo ex-Français, Congo ex-Belge, Côte d'Ivoire, Dahomey, Gabon, Guinée, Mali, Mauritanie, Niger, Sénégal, Tchad, Togo, Haute-Volta et Madagascar, auxquelles s'ajoutent l'Algérie, le Ruanda et le Burundi). Ce nombre ne comprend pas cinq autres nations utilisant le français comme langue administrative, secondaire ou véhiculaire, à savoir: Cambodge, Laos, Maroc, Tunisie et Viet-Nam. Au total, dans le monde, un pays indépendant sur quatre au moins est donc "d'expression française" d'une manière ou d'une autre.—Jacques Capelovici, Revue de la Confédération des Travailleurs Intellectuels.

L'Association

CONFÉRENCE ORGANISÉE SUR LA CYTOLOGIE EXFOLIATIVE

Une conférence des secrétaires des organismes dentaires provinciaux et de délégués des facultés dentaires a eu lieu à Montréal, le 3 décembre. Cette assemblée marquait l'inauguration d'une campagne nationale pour familiariser la profession dentaire avec la méthode des frottis buccaux pour déceler le cancer. Le docteur Henry C. Sandler, de New York, et d'autres conférenciers ont parlé de l'efficacité de la méthode.

L'Institut National du Cancer et l'Association dentaire canadienne ont fait les arrangements nécessaires à cette conférence et les frais ont été défrayés par l'Institut et le conseil des recherches de l'A.D.C. Le docteur C. H. M. Williams, de Toronto, qui est le représentant de l'A.D.C. à l'Institut, a été la figure dominante de l'organisation de cette conférence.

MÉMORIAL AU FONDS CANADIEN POUR L'ENSEIGNEMENT DENTAIRE

Le Fonds canadien pour l'enseignement dentaire accepte maintenant des offrandes faites pour le souvenir de dentistes défunts, de membres de leur famille et de leurs amis. Des dentistes et des amis de la profession dentaire ont, dès la création du Fonds, fait spontanément des offrandes pour perpétuer le souvenir de personnes décédées. Le Bureau de fiducie du fonds, à son assemblée du 30 septembre, a décidé de statuer les détails de ces offrandes de souvenir. Le donateur reçoit une lettre de remerciements et la famille du défunt reçoit une carte appropriée. On est à préparer une brochure donnant des renseignements à ce sujet. On a rapporté, au cours de l'assemblée du Bureau de fiducie, que les dons au Fonds au cours des dix premiers mois de sa première année se sont chiffrés à $22,000. On publiera au début de 1964, un bilan spécial au sujet de la première année fiscale de novembre 1962 au 31 décembre 1963.

ASSEMBLÉE DES SECRÉTAIRES PROVINCIAUX

Les secrétaires des organismes dentaires provinciaux se sont réunis à Montréal du 2 au 4 décembre à l'occasion de la quatrième conférence annuelle des secrétaires organisée par l'Association dentaire canadienne. Le président de la conférence était le docteur George M. Dewis de Halifax. Les secrétaires des dix membres corporatifs de l'A.D.C. étaient présents, de même que le secrétaire et les membres du personnel du secrétariat de l'Association dentaire canadienne. Ils ont discuté de problèmes communs. La conférence a eu lieu dans les nouveaux bureaux du Collège des chirurgiens dentistes de la province de Québec, situés à 801 est Sherbrooke, Montréal.

ON RATIFIE LA PUBLICITÉ FAITE POUR LE RECRUTEMENT

Le comité national de recrutement de l'Association dentaire canadienne a ratifié pour 1964 un programme de publicité qui coûtera $1,300. On publiera des articles spéciaux traitant de la carrière de dentiste dans les numéros consacrés aux vocations du *Canadian High News, Vie Etudiante* et *Canada Careers Directory.* Le comité a sanctionné ces projets à son assemblée du 4 novembre, qui a eu lieu à Toronto. Dans le *Canadian High News,* les coupons détachés de la page de la chirurgie dentaire par les collégiens se sont chiffrés à 400. On fait parvenir à ces collégiens des renseignements sur la carrière dentaire et on envoie les

coupons au comité provincial de recrutement pour qu'il s'occupe personnellement de ces candidats. Ce journal a un tirage de 100,000 copies et il est envoyé aux écoles secondaires de tout le Canada. Il y a une publication semblable en français dans la province de Québec. Le *Canada Careers Directory* est un livre bilingue de renseignements qui parvient aux bibliothèques scolaires et aux chargés d'orientation professionnelle.

Le comité a pris connaissance d'un rapport traitant des activités du recrutement dans toutes les parties du Canada et il a décidé d'entreprendre de nouvelles initiatives. Un des projets est de réaliser une courte pellicule cinématographique en couleurs; on compte la terminer l'an prochain. Le comité songe à rédiger un genre de manuel qui offrirait des suggestions de nature à aider les comités provinciaux et locaux de recrutement.

DÉCÈS DU DOCTEUR MERKELEY, ANCIEN PRÉSIDENT

Le docteur Howard J. Merkeley, de Winnipeg, est décédé le 4 septembre. Il fut président de l'Association dentaire canadienne en 1945-46 et nommé membre honoraire en 1957. Né dans l'est de l'Ontario, le docteur Merkeley a commencé à exercer à Winnipeg, après avoir terminé ses études à l'Université de Toronto, en 1911. Il fut le premier président du Bureau national d'examen dentaire et "fellow" du Collège américain des dentistes. Il a agi comme président des sociétés de Winnipeg, de Manitoba et de l'ouest du Canada. Il s'occupa, comme passe-temps, d'implanter au Manitoba des animaux, des oiseaux, des fruits et des fleurs inconnus dans cette province, les acclimatant à l'hiver rigoureux de cette région.

FASCICULE SUR L'EXERCICE DE GROUPE

On peut se procurer au secrétariat de l'A.D.C. un fascicule sur l'exercice de groupe. Cette monographie a été rédigée par les docteurs O. J. Yule, J. Kreutzer et A. M. Thomson à l'intention du comité des services dentaires de l'A.D.C.

LE PLAN D'ÉPARGNE-RETRAITE GROSSIT GRADUELLEMENT

Le plan d'épargne-retraite de l'Association dentaire canadienne, depuis son début il y a six ans, a grossi graduellement et il a maintenant une valeur au marché de plus de $2.3 millions. Le dernier rapport trimestriel, daté du 31 août, indique que 61 pour cent de ce fonds est investi dans des actions communes, 25 pour cent, dans des débentures et 14 pour cent, dans des obligations du gouvernement. La valeur de chaque unité qui, au début, était de $10 se situe maintenant à $15.66 (actions communes), $12.77 (débentures) et $12.23 (obligations du gouvernement). 565 membres de l'A.D.C. participent à ce plan.

TOURNÉE DU PRÉSIDENT DANS L'EST DU PAYS

Le docteur James Zimmerman, de Calgary, président de l'Association dentaire canadienne, a visité des sociétés dentaires dans plusieurs villes de l'est du Canada. Il était accompagné du docteur Don W. Gullett, secrétaire de l'Association. Au cours de ce voyage, ils ont visité quatre provinces et adressé la parole aux étudiants des universités McGill, Montréal et Dalhousie. Leur itinéraire fut le suivant: le 4 novembre — Québec; le 5 novembre — Fredericton; le 6 novembre — Charlottetown; le 7 novembre — Halifax; le 11 novembre — Montréal.

Le docteur Gullett et Rémy Langlois, président-élu de l'Association, ont représenté l'Association dentaire canadienne au congrès de la Société dentaire de Terre-Neuve, à Gander, au cours du mois d'octobre.

ASSEMBLÉE DU COMITÉ DE RECRUTEMENT

Le comité national de recrutement de l'Association dentaire canadienne s'est réuni à Toronto, le 4 novembre. Les comités provinciaux y ont présenté des rapports et on a élaboré des plans pour l'avenir. Ce comité national est sous la présidence du docteur Wesley Dunn et il comprend les membres suivants: le doyen Roy Ellis, de Toronto, délégué de l'Ontario; le docteur John Michaelson, de Vancouver, représentant les provinces de l'ouest; le docteur Gustave Ratté, de Québec, délégué de la province de Québec; et le docteur Donald C. Steeves, de Moncton, représentant des provinces maritimes. Le comité a de plus deux consultants: Mme Donna Leslie, une hygiéniste dentaire, et M. Charles Peirce, représentant la section canadienne de l'American Dental Trade Association. Le docteur Jean-Paul Lussier, de Montréal, président du conseil d'enseignement de l'A.D.C., sous l'égide duquel le comité accomplit son travail, est membre ex-officio.

Le Canada

QUESTIONS SUR LE TAUX DES DOUANES DES ÉQUIPEMENTS DENTAIRES

On peut lire dans les *Débats* de la Chambre des Communes, le 21 octobre 1963, le débat suivant au sujet de la douane du matériel dentaire. "M. Slogan" est le docteur Joseph Slogan, de Winnipeg, un député conservateur et membre de l'Association dentaire canadienne.

"Question no 1, 326 — M. Slogan:

1. Quels tarifs sont imposés aux équipements dentaires, les fournitures et le matériel importés dans ce pays?

2. Y a-t-il une différence entre les tarifs des matériaux dentaires utilisés dans la bouche et ceux qui ne sont pas utilisés dans la bouche?

3. Quels tarifs spécifiques sont imposés sur les matériaux d'empreinte à base d'alginate, sur les brosses à prophylaxie et les cupules en caoutchouc fabriqués aux Etats-Unis?

M. Garland:

1. Les instruments dentaires fabriqués de n'importe quel matériel pour la chirurgie opératoire, les appareils d'orthodontie et les parties utilisées pour le traitement des malocclusions, les lampes dentaires, les appareils de radiographie, les pellicules, les réservoirs pour développer les films, les stérilisateurs à instruments, les dents artificielles pour les dentiers sont admis sans frais de douane, sous tous les tarifs.

Les fauteuils dentaires, les unités, les moteurs dentaires électriques et les crachoirs dentaires sont admis sans frais de douane quand ils sont importés d'après le tarif préférentiel britannique ou d'après le tarif des pays les plus favorisés. Ces articles, d'après le tarif général, sont sujets à 35 pour cent de leur valeur; les autres pièces d'équipement et les autres fournitures sont sujettes aux règlements des tarifs des douanes selon leur classification.

2. Les matériaux dentaires sont sujets aux mêmes taux de douane qu'ils soient utilisés dans ou hors de la bouche.

3. Le matériel à empreinte à base d'alginate est sujet à 20 pour cent de douane selon leur valeur, quand ils sont importés des Etats-Unis. Les brosses à prophylaxie et les cupules en caoutchouc pour les pièces à main ne font pas l'objet de frais de douane, sous tous les tarifs.

NOUVEAUX "FELLOWS" CANADIENS DU COLLÈGE AMÉRICAIN DES DENTISTES

Sept dentistes canadiens ont été reçus "fellows" du Collège américain des dentistes à la réunion de cet organisme qui a eu lieu récemment à Atlantic City. Ces dentistes sont les suivants: Duncan J. Ferguson, de London, Ont.; Philip J. Gitnick, de Montréal; Harry M. Jolley, de Toronto; Roland T. Lamb, de Montréal; Robert W. Marshall, de Toronto; D. Hugh Munro et Wesley P. Munsie, de Vancouver.

LES REVENUS DES DENTISTES AUGMENTENT

Les revenus des dentistes ont augmenté de 55 pour cent de 1954 à 1960, selon une étude de statistiques entreprise par le *Canadian Business*. Les revenus du groupe classifié comme médecins et chirurgiens ont augmenté de 37 pour cent, durant la même période. Les comptables ont vu leurs revenus augmenter de 31 pour cent, les ingénieurs et les architectes, de 29 pour cent, les avocats et les notaires, de 22 pour cent. Les revenus des vendeurs ont augmenté de 20 pour cent et ceux des propriétaires d'entreprises, de 6 pour cent. La moyenne de tous les contribuables fut de 23 pour cent.

Selon le rapport *Statistique fiscale*, la moyenne des revenus pour 1960 s'établit à $16,323 pour les chirurgiens et les médecins; à $15,670 pour les ingénieurs et les architectes; à $14,597 pour les avocats et les notaires; à $12,238 pour les dentistes; et à $11,446 pour les comptables. La moyenne des revenus de tous les contribuables fut $4,232.

LA SASKATCHEWAN AUGMENTE LES BOURSES D'ÉTUDES EN CHIRURGIE DENTAIRE

Le manque aigu de dentistes en Saskatchewan a incité le Ministère de la santé publique à amplifier le programme des bourses de façon à ce que plus d'étudiants décident d'entreprendre leurs études dentaires pour exercer dans cette province.

Le docteur V. L. Matthews, sous-ministre adjoint du Ministère de la santé, a déclaré que le nombre de dentistes qui exercent en Saskatchewan n'augmente pas en rapport avec les besoins pour des services dentaires. Les statistiques montrent que pour chacun des 4,800 habitants de cette province, il n'y a qu'un dentiste disponible. Il a dit espérer que ce manque de praticiens sera corrigé jusqu'à un certain point par la mise en acte d'un nouveau programme de bourses. Le gouvernement mettra 45 bourses, tous les ans, à la disposition des étudiants, de préférence ceux de Saskatchewan, inscrits à des facultés dentaires canadiennes ou américaines reconnues par la loi dentaire de Saskatchewan. Un étudiant peut solliciter une ou deux portions, mais il doit prouver

qu'il a besoin financièrement de cette deuxième tranche de $600 pour toute année académique. Ceux qui profitent de ces bourses s'engagent à exercer en Saskatchewan durant six mois pour chacune des portions de bourse qu'ils ont reçue. Le docteur Matthews a déclaré que si un étudiant ne remplit pas ses obligations, il devra remettre au Ministère tout l'argent qu'il a reçu.

On s'adresse au secrétaire, Comité des bourses, Ministère de la santé publique, Edifice de la santé, Regina, Saskatchewan.

LES PROFESSIONS MISES EN MONTRE

"Les professions organisées doivent trouver des moyens d'aider leurs membres à prodiguer plus rapidement des services à meilleur compte . . . Les professions doivent s'assurer que tous les services requis sont prodigués et prendre l'initiative pour résoudre les questions des frais fixes et de paiements." Ces déclarations ont été faites par le Juge Edson Haines devant la Société médico-légale de Toronto. M. Haines, avant sa nomination comme juge, était conseiller légal de l'Association médicale d'Ontario.

DÉBUT D'UN PLAN DENTAIRE DANS LES PROVINCES MARITIMES

L'Association des services hospitaliers des provinces maritimes a décidé de mettre à la disposition de ses employés un plan dentaire pré-payé. Ce plan fonctionnera durant un an sur une base expérimentale et, s'il donne les résultats qu'on en attend, il constituera la base d'un plan dentaire qu'on offrira au public des provinces de l'Atlantique. L'Association administre déjà la Croix-Bleue des maritimes et le Bouclier bleu à son secrétariat à Moncton, Nouveau-Brunswick. La Cie d'assurance Zurich organise deux plans dentaires au Canada.

Chronique internationale

LE DOCTEUR FRITZ PIERSON DEVIENT PRÉSIDENT-ÉLU DE L'ASSOCIATION DENTAIRE AMÉRICAINE

Le docteur Fritz A. Pierson, de Lincoln, Nebraska, a été choisi président-élu de l'Association dentaire américaine. Il a représenté le onzième district comme membre du Bureau des directeurs durant plusieurs années. Plusieurs dentistes canadiens se souviennent du docteur Pierson qui agissait comme le représentant officiel de l'Association dentaire canadienne au congrès de l'Association dentaire canadienne tenu à Saskatoon, en 1961.

Le docteur James P. Hollers, de San Antonio, Texas, a aussi été élu président de l'Association dentaire américaine à la 104e assemblée de cette Association qui a eu lieu à Atlantic City, en octobre dernier. Le docteur Hollers succède au docteur Gerald D. Timmons, de Philadelphie.

Le Conseil des Gouverneurs a approuvé une augmentation de la cotisation annuelle des membres de l'A.D.A. à $40 par année; il a accordé le droit de vote au Bureau des directeurs à trois vice-présidents et au président-élu; il a reconnu l'endodontie comme spécialité, seule spécialité reconnue depuis 1950; il a sanctionné les plans d'un édifice de 22 étages au coût de 12 millions qui servira de secrétariat général de l'A.D.A.; il a adopté un budget de $4,229,960.

L'inscription au congrès a atteint un nouveau record, 17,552, surpassant tous les congrès précédents, excepté celui du centenaire tenu à New York en 1959. Ce chiffre comprend 7,653 membres de l'A.D.A. et 218 dentistes venant de pays étrangers. L'Association dentaire canadienne était officiellement représentée par le président-élu de l'Association, le docteur Rémy Langlois.

PLAN DE SANTÉ DENTAIRE EN SUÈDE

Le secrétaire de l'Association dentaire canadienne, le docteur Don W. Gullett, a visité la Suède, au cours de juillet, et il rapporte ainsi ses observations sur le plan de santé dentaire de ce pays:

Les écoliers de Suède reçoivent gratuitement tous les soins de santé dentaire. On a porté de 15 à 16 ans, en 1963, la limite d'âge pour ces soins. Les fonctionnaires du gouvernement prétendent que cette limite sera éventuellement haussée à 18 ans, mais les dentistes sont d'avis que des pressions exercées sur les politiciens feront que toute la population pourra à la fin profiter de ce plan de santé. Le gouvernement, toutefois, dans le passé, a suivi les recommandations de la profession de procéder par étapes à l'établissement du plan.

Plus de 1,900 dentistes, sur un total de 5,800 consacrent tout leur temps à l'emploi

des services dentaires publics. Ces dentistes travaillent à salaire et ils exercent dans des cliniques établies dans tout le pays; ces cliniques sont administrées par des conseils de comté. Tous ces dentistes doivent consacrer la moitié de leur temps au traitement des enfants. L'autre moitié s'utilise au soin des adultes de la région. Les adultes paient des honoraires fixés par une échelle. Ces honoraires sont plutôt bas, si on les compare à ceux du Canada. Les dentistes sont sévèrement poursuivis en justice s'ils perçoivent des honoraires au-delà de ceux fixés par le gouvernement. L'argent versé par les adultes fait l'objet d'une comptabilité stricte et il est utilisé pour l'administration de la clinique de la région.

Des dispositions particulières sont prises, dans les cabinets particuliers, pour le traitement des femmes enceintes et pour les mères qui allaitent leur enfant. Le dentiste charge des honoraires réguliers et un fonds de sécurité sociale rembourse en partie la patiente. Cette ristourne se chiffre à environ le tiers du montant des honoraires. Le gouvernement, pour répondre aux nécessités de la population, s'efforce d'améliorer la proportion du nombre des dentistes par rapport à celui des habitants. Cette proportion s'établit actuellement à 1 dentiste par 1,300 citoyens. On veut la porter à 1 pour 1,000.

L'attitude de la profession vis-à-vis le plan de santé a beaucoup évolué au cours des dernières années. Les dentistes croient qu'il ne sert à rien de s'opposer à cette tendance qui, selon eux, est fatale. Ils pensent plutôt que la profession, pour obtenir de meilleurs résultats, doit offrir sa collaboration.

LE SÉNATEUR GOLDWATER APPROUVE LA FLUORATION

Le sénateur Barry Goldwater (Arizona) a ratifié en douce la fluoration dans une interview enregistrée, le 23 septembre dans le Congressional Quarterly. Cette revue a rapporté "qu'il n'a pas d'objection à diminuer la carie dentaire. Si les docteurs disent que c'est une bonne chose, je les crois sur parole," dit le sénateur Goldwater.

LE PLAN DE CALIFORNIE GROSSIT

Le Service dentaire de Californie, une corporation de services mise sur pied par la profession, rapporte qu'il dirige maintenant 30 plans de services dentaires qui desservent 500,000 personnes de l'Etat. On est à organiser d'autres plans. A la fin de 1961, le Service desservait 9,400 personnes et 70,000, à la fin de 1962. Les dentistes qui participent à ces plans se chiffrent à 6,267; il y a 9,000 dentistes en Californie.

ASSOCIATION DENTAIRE FORMÉE AUX ILES BAHAMAS

On a fait part qu'on a fondé, à Nassau, l'Association dentaire des îles Bahamas. Le docteur H. E. Leyland, membre de l'Association dentaire canadienne et autrefois de Toronto et de Floride, a été l'instigateur de ce mouvement. Les dentistes canadiens qui visitent Nassau sont invités à assister aux réunions qui ont lieu le premier mardi de chaque mois. Le secrétaire est le docteur Cyril Vanderpool, C.P. 5455MS, Nassau.

L'A.A.A.S. SE RÉUNIT À MONTRÉAL

L'Association américaine pour l'avancement des sciences tiendra son congrès annuel à Montréal, du 26 au 31 décembre 1964. L'A.A.A.S., depuis sa fondation, il y a 115 ans, a tenu son congrès au Canada, sur une base nationale, seulement cinq fois, dont la dernière fut à Ottawa, en 1938. Plusieurs Canadians font partie de cette association.

"SERRONS LES COUDES POUR FAIRE FACE AU DÉFI DU GOUVERNEMENT"

"Toutes les professions de santé doivent se serrer les coudes et se faire mutuellement confiance pour faire face aux contrôles que veut établir le gouvernement." "Notre profession, si elle est seule, ne pourra pas garder sa liberté: elle sera dirigée par le gouvernement." Ainsi s'adressait le docteur A. W. Matthews, président de l'Association pharmaceutique canadienne, à des congressistes réunis à Winnipeg, au début du mois d'août.

Le secrétaire général du U. S. College of Apothecaries, M. R. A. Abrams, a déclaré que les pharmaciens doivent avoir une profession forte; autrement le gouvernement jouera un rôle de plus en plus grand dans l'exercice pharmaceutique. Il a recommandé aux pharmaciens de soigner leurs relations extérieures pour prévenir la main-mise gouvernementale. M. Abrams a prié avec instance les pharmaciens d'agir comme des professionnels.

Les sociétés dentaires

TERRE-NEUVE ÉLIT UNE DAME COMME PRÉSIDENTE

Le docteur Kira Obrazcova a été élue présidente de la Société dentaire de Terre-Neuve. Elle est probablement la première femme dentiste à présider un organisme dentaire provincial. Les autres officiers tous de St-Jean, sont les docteurs Ray Downton, premier vice-président; Ray Windsor, secrétaire; D. Hollett, trésorier.

Le docteur Obrazcova arriva à Corner Brook, en 1948. Née en Latvie, elle a fait son cours collégial en Allemagne et ses études dentaires à l'Université Dalhousie. Dans sa vie privée, elle est Mme Lloyd Candow et elle a un fils. Elle s'est toujours occupée d'organisations sociales; elle fut un officier du Women's University Club, de la Fondation des bourses de Corner Brook, d'un club de ski et du Playmakers Company.

Hygiène publique

UN COMITÉ D'OTTAWA APPUIE LA FLUORURATION

Le comité bénévole de la santé du Sénat et de la Chambre des Communes a unanimement appuyé la fluoruration de l'eau de consommation comme "une mesure adéquate pour prévenir la carie dentaire." Cette décision fut prise à une assemblée régulière du comité, le 17 octobre 1963. Ce comité est formé de délégués des deux chambres et il comprend tous les médecins, tous les dentistes et toutes les dames membres des deux chambres.

LES MÉDECINS ENVISAGENT QUE LE FLUOR PROFITE AUX OS

"Très bientôt, on aura des preuves que les personnes agées profiteront davantage du fluor que les enfants — non seulement elles auront de meilleures dents (les leurs) et pourront mieux s'alimenter dans leur vieillesse, mais elles auront des os plus forts et elles seront moins exposées à ces fractures si elles tombent accidentellement."

Le docteur Frederick J. Stare, M.D., Ph.D., qui est président du département de nutrition de l'Ecole d'hygiène publique de l'Université Harvard, a fait cette prédiction. Le docteur Stare a prédit, dans des conférences et des entrevues par tout le pays, que les fluorures ont des propriétés pour consolider le tissu osseux.

Le *New England Journal of Medecine* (livraison du 25 juillet 1963) a émis l'opinion que "les signes précurseurs du rôle possible de l'usage du fluor pour les maladies osseuses sont encourageants." L'éditorial se basait sur des rapports récents de journaux médicaux sur l'emploi du fluorure de sodium dans le traitement de l'ostéoporose et de la maladie de Paget, des maladies dégénératives de l'os qui affectent, à un certain degré une grande proportion des personnes âgées.

Ces rapports précoces "laissent voir une façon nouvelle et fascinante de traiter les maladies osseuses," déclare le New England Journal quoiqu'il y ait plusieurs problèmes que devront résoudre les recherches avant que ce traitement soit généralement adopté. "Quoique la dose exacte n'ait pas encore été déterminée, il semble que le fluor soit un aliment précieux pour l'os."

Le Journal déclarait au sujet de la fluoruration de l'eau: "En effet, la dose minime (1 mg par jour) utilisée pour prévenir la carie chez les enfants peut être augmentée pour inclure les adultes dans l'espoir à l'avenir de prévenir l'ostéoporose."

DÉBUT DE LA FLUORATION À TORONTO

La fluoration a été inaugurée dans le Toronto Métropolitain dix mois et un jour après que la population des 13 municipalités qui le composent se fut déclarée, au cours d'un plébiscite, en faveur de cette mesure. Apparemment, Toronto est la ville la plus considérable qui ait adopté la fluoration à la suite d'un référendum. L'eau fluorée a commencé à être distribuée par l'aqueduc, le 4 septembre. Ainsi, les 1,600,000 citoyens de Toronto portent le total des Canadiens qui consomment de l'eau fluorée à 3,800,000 ou à un pour cinq.

LES EFFETS DE LA FLUORATION À WINNIPEG

Winnipeg fut une des premières villes au Canada à ajouter du fluorure de sodium à son eau de consommation. Actuellement, après cinq ans, selon le docteur C. A. McCor-

mick, directeur des services dentaires de cette ville, seulement un enfant de six ans sur cinquante a eu à faire extraire prématurément des dents, à comparer à sept sur cinquante en 1959. Il a déclaré que le pourcentage d'enfants dans le groupe ayant des caries, qui était de 75 pour cent, en 1959, s'établit à 45 pour cent, cette année. (Tiré du *Financial Post* 24 août 1963).

UNE COMPAGNIE QUI FABRIQUAIT DES FLUORISEURS POUR LES MAISONS PRIVÉES FAIT FAILLITE

La Dominion Fluoridators Limited s'est mise en banqueroute. La compagnie fabriquait à Toronto et à Vancouver, depuis une dizaine d'années, des appareils qui pouvaient se fixer aux robinets des domiciles pour fluorer l'eau. M. William Doupe, 63 ans, fondateur de la compagnie et détenteur de la majorité de ses parts, a attribué la faillite au prix exhorbitant de l'appareil, à son manque ou peu d'intérêt qu'il suscitait et à la fluoration de l'eau des aqueducs. L'appareil qui se vendait au gros $15, se détaillait chez les agents $295. La compagnie a fabriqué environ 4,000 appareils, mais elle en a encore en stock un grand nombre. La fabrication de ces appareils a cessé il y a environ un an. Les associations dentaires n'avaient pas donné leur approbation à ces appareils.

JOURNÉE DE SANTÉ DENTAIRE, LE 11 MARS

La journée nationale de santé dentaire sera célébrée le 11 mars et elle fera partie de la semaine de santé qui est organisée par la Ligue de santé du Canada. La Ligue, quoique certaines provinces organisent une journée ou une semaine de santé dentaire à d'autres périodes de l'année, a quand même réservé une journée de sa semaine de santé pour mettre en vedette, dans tout le pays, l'hygiène dentaire.

UNE OPPOSITION LATENTE RALENTIT LES PROGRÈS DE LA FLUORATION

Le *Financial Post* a publié, le 10 août, l'éditorial suivant sous le titre "Est-cela du progrès?"

> "Depuis plus de dix ans, les autorités sanitaires du Canada font campagne pour la fluoration. Les médecins et les dentistes, en grande majorité, déclarent que la fluoration est sans danger et efficace pour réduire la carie dentaire. Mais une enquête entreprise récemment par la Presse Canadienne montre qu'un grand nombre de Canadiens, de bonne foi, croient encore les balivernes et les non-sens débités par les adversaires de la fluoration. La Presse Canadienne révèle que parmi les 30 villes qui ont voté sur la question, en 1962, 18 d'entre elles ont rejeté la fluoration et seulement 12 ont voté en faveur.
>
> "En mai de cette année, seulement 137 municipalités ajoutent du fluor à leur eau. Ces municipalités comptent un total de deux millions d'habitants. Le Nouveau-Brunswick et l'Ile-du-Prince-Edouard n'ont pas la fluoration. La plus grosse ville de la province de Québec qui utilise cette mesure est Trois-Rivières qui compte 50,000 habitants. En Ontario, des villes importantes comme Ottawa, Hamilton et London ont voté contre la fluoration. En Colombie britannique, il y eut 50 référendums depuis 1954 et seulement en 10 occasions la population a voté en faveur de cette mesure de santé publique.
>
> "Il est évident que les adversaires de la fluoration (en petit nombre, mais très actifs) ont réussi à jeter le doute dans l'esprit des gens. Cette situation est très étrange. Des commissions gouvernementales indépendantes, au Canada, aux Etats-Unis, en Angleterre, en Irlande, en Nouvelle-Zélande, en Suède et ailleurs se sont prononcées en faveur de la fluoration. L'Organisation mondiale de la santé a recommandé son usage 'sans restriction ou danger'. Les enfants, condamnés à grandir avec une quantité d'ennuis dentaires qui peuvent être évités, ne se soucieront guère qu'il y ait eu des débats peu dignes au sujet de plusieurs autres mesures — l'anesthésie, la vaccination, la pasteurisation du lait et la chlorination de l'eau potable."

DEUX VILLES DE NOUVELLE-ECOSSE ADOPTENT LA FLUORATION

Antigonish et Windsor portent à six le nombre des villes de Nouvelle-Ecosse, qui utilisent la fluoration. Windsor a commencé en mai et Antigonish, le 2 août. Presque 18,000 habitants de la Nouvelle-Ecosse consomment de l'eau fluorée. Windsor compte 3,800 et Antigonish 4,600.

LA VILLE DE DÉTROIT ADOPTE LA FLUORATION

Un juge de la cour du circuit de Détroit a sanctionné le règlement au sujet de la fluoration. Il a déclaré que le règlement adopté par le Conseil municipal, en novembre, est valide et constitutionnel sous tout rapport. Une action pour mettre en cause ce règlement a été rejetée. L'action avait été prise par les représentants de Détroit de l'Association nationale de santé. L'aqueduc de Détroit fourni l'eau à plusieurs banlieues.

On n'a pas décidé de la date où commencerait la fluoration.

Le sujet de la causerie portait notamment sur le rôle grandissant du personnel auxiliaire au sein du Corps dentaire.

Le Corps dentaire royal canadien

EN SOUVENIR DU LIEUTENANT-COLONEL BLAIR

Un portrait, ainsi que les médailles de feu le lt-col. J. F. Blair, D.S.O., E.D., ont été montés et présentés au Corps comme souvenir par le lt-col. A. J. Harris, commandant de la 55e Unité du Corps dentaire royal canadien (M), à l'occasion du dîner annuel de l'Association du Corps dentaire.

Le lt-col. Harris a rendu hommage au dévouement du lt-col. Blair qui a servi au cours des deux guerres mondiales et qui fut l'un des très rares officiers dentistes à être décorés pour un acte de bravoure insigne en campagne.

En acceptant ce souvenir, qui sera suspendu dans la bibliothèque de l'Ecole du Corps dentaire, le brigadier K. M. Baird a exprimé sa gratitude envers la famille du lt-col. Blair et la 55e Unité dentaire.

TOURNÉE DU BRIGADIER BAIRD

Le brigadier K. M. Baird, directeur général des Services dentaires des forces armées du Canada, s'est rendu au Camp Borden (Ont.) le 20 septembre, pour s'entretenir avec les officiers qui y suivaient les cours d'avancement de capitaine à major.

Dernièrement le brigadier Baird, accompagné du commandant de la 13e Compagnie dentaire, le colonel A. T. Roger, a visité les cliniques dentaires situées à Trenton, Kingston, Toronto, Oakville et London.

UN OFFICIER DE LA DIRECTION PRONONCE UNE CAUSERIE À UN BANQUET D'INFIRMIÈRES DENTAIRES

Le lt-col. D. H. Hillier, officier dentiste (hygiène publique), était le conférencier invité à un banquet de remise des diplômes offert, le 9 octobre, par l'Association des infirmières et assistantes dentaires d'Ottawa.

OFFICIER DU CORPS INSCRIT À UN COURS D'HYGIÈNE PUBLIQUE

Le major W. H. Harrington, qui a récemment terminé une période de service outre-mer, suit actuellement un cours d'hygiène dentaire publique d'une durée de neuf mois à l'Université de Toronto.

UN OFFICIER DE WINNIPEG ENSEIGNE À L'UNIVERSITÉ DU MANITOBA

Le lt-col. L. A. Richardson a repris ses fonctions d'instructeur adjoint au département de prothèse de la faculté de chirurgie dentaire, à l'Université du Manitoba. Cet emploi à temps partiel, qui a été créé l'an dernier, fournit aux officiers du Corps une très précieuse expérience.

AFFECTATIONS

Le capitaine L. Dombowsky, diplômé de l'Université d'Alberta en 1954, qui avait pris sa retraite en septembre 1960, s'est rengagé dans le Corps et sert actuellement au chantier maritime d'Halifax.

Les officiers dentistes ci-après ont été déplacés récemment:

le major P. L. Falkner, qui était en service à la base l'A.R.C., à Downsview, a été affecté au Stadacona;

le major J. J. Walker, qui était en service à la base de l'A.R.C., à Cold Lake, a été affecté à la caserne Currie, à Calgary;

le capitaine F.-C. Arpin, qui était en service à Longue-Pointe (Québec), a été affecté à la 4e Compagnie dentaire de campagne, en Allemagne;

le capitaine D. S. Campbell, qui était affecté à l'Hôpital des forces canadiennes, à Halifax, a été affecté à la base de l'A.R.C., à Summerside;

le capitaine A. G. Garden, qui était en service à la caserne Currie, à Calgary, a été affecté à la base de l'A.R.C., à Penhold;

le capitaine I. M. Hamilton, qui était en service au Shearwater, a été affecté au Bonaventure;

le capitaine V. D. Kvedaras, qui était en

service à la base de l'A.R.C., à Clinton, a été affecté à la base de l'A.R.C., à North Bay.

le capitaine J. J. Mitchinson, qui était en service à la base de l'A.R.C., à North Bay, a été affecté à la base de l'A.R.C., à Downsview.

le capitaine R. T. Mori, qui était en service à la base de l'A.R.C., à Trenton, a été affecté à la base de l'A.R.C., à Winnipeg.

LIBÉRATIONS

Les officiers ci-après ont été libérés du Corps et sont retournés à la vie civile. Ce sont: les capitaines J.-G. Boucher, J.-R. Boulay, J.-M.-M. Houde, C. D. Mollins, W. F. Shaw, S. M. Claman, P.-J.-J. Coulombe, J. T. Marshall et A.-J.-J.-C. Vachon.

NOUVEAU CONSULTANT EN CHIRURGIE BUCCALE

Le docteur James P. Coupland, D.D.S., F.A.C.D., F.I.C.D., a accepté la charge de consultant en chirurgie buccale auprès du Corps dentaire. Le docteur Coupland a obtenu son diplôme en chirurgie buccale dans la province d'Ontario en 1948 et il a pris une part active à de nombreux congrès de dentistes, tant au Canada qu'aux Etats-Unis. Il a rempli les fonctions d'instructeur en radiographie dentaire pour le compte du Corps dentaire royal canadien et d'importantes revues dentaires ont publié ses articles. Membre fondateur de la Société de chirurgie buccale du Canada, le docteur Coupland fait également partie de l'American Society of Oral Surgeons. Ancien président de l'Association dentaire de l'est de l'Ontario, il est directeur du Collège royal des chirurgiens dentistes de l'Ontario et membre du Conseil Exécutif de l'Association dentaire canadienne.

INSTRUCTION D'ÉTÉ POUR ÉTUDIANTS EN CHIRURGIE DENTAIRE

L'instruction d'été pour l'année 1963 s'est terminée le 8 août, à Camp Borden (Ont.), par un défilé d'élèves-officiers et d'officiers qui étudient à l'université. Ce défilé a eu lieu à l'Ecole du Corps dentaire royal canadien, où les jeunes gens avaient suivi leurs deuxième et troisième périodes d'instruction pratique, aux termes du programme d'aide financière pour la formation d'officiers dentistes. C'est le brigadier K. M. Baird, directeur général des Services dentaires, qui a passé les troupes en revue.

Le brigadier Baird et le colonel I. A. L. Millar, sous-directeur général des Services dentaires, ont assisté ensuite à un dîner de mess donné en l'honneur de ces futurs officiers dentistes du Corps dentaire, à l'occasion de leur départ pour l'université où ils vont poursuivre leurs études.

HONNEURS ACCORDÉS AUX ÉTUDIANTS À L'ÉCOLE DU CORPS DENTAIRE

L'Ecole du Corps dentaire a fait connaître récemment les noms de ceux qui ont remporté les prix de compétence au cours de la période d'instruction pratique. Les étudiants en chirurgie dentaire qui reçoivent une aide financière du Ministère de la défense nationale suivent cette formation pendant les mois d'été, en prévision de leur future carrière d'officier dentiste. Voici la liste des récompenses décernées à la suite des cours d'été pour l'année 1963:

Elève qui s'est classé premier au cours de la première période d'instruction: l'élève-officier M. C. Devine, Université de Toronto;

Elève qui s'est classé premier au cours de la deuxième période d'instruction: l'élève-officier Z. Tukums, Université de Toronto;

Elève qui s'est classé premier au cours de la troisième période d'instruction: le sous-lieutenant M. G. McRae, Université de l'Alberta;

Elève qui s'est classé deuxième au cours de la troisième période d'instruction: le sous-lieutenant H. Griesbach, Université de Toronto;

Gagnant du trophée de l'instructeur-chef: le sous-lieutenant J. R. Robertson, Université Dalhousie;

Deuxième au concours du trophée de l'instructeur-chef: l'élève-officier J. A. Natress, Université de Toronto.

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Fluoride supplements for prophylaxis of dental caries

Gordon Nikiforuk, D.D.S., M.Sc., and Donald Fraser,† M.D., Ph.D.,*
Toronto, Ontario

In the thirty years since Dean's classical studies demonstrated the importance of fluoride in prophylaxis of dental caries,[1,2] well controlled studies have repeatedly corroborated the efficacy and safety of communal water fluoridation programs. Evidence indicates that in regions in which the communal water supply contains fluoride ion in concentrations of 1 ppm (part per million), the incidence of dental caries in children is approximately one-half that found when the drinking water contains less than 0.2 ppm, and the benefits extend into adult life.

The most effective and least expensive method of caries prophylaxis for the general population is adjustment of the fluoride concentration of the community water supplies to 1 ppm. Significant progress has been made in having the bene-

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*Department of Preventive Dentistry, Division of Dental Research, University of Toronto, and The Hospital for Sick Children.

†Department of Paediatrics, Faculty of Medicine, University of Toronto, and The Hospital for Sick Children, Toronto.

fits of communal water fluoridation available to large segments of the population (over 43 million in the United States and over 3.8 million in Canada). However, many communities have been tardy in the implementation of fluoridation programs; furthermore, approximately one-third of the population in Canada and the United States does not have access to a communal water supply. It is important to extend the benefits of fluorides to the people in these areas.

The purpose of this report is to describe methods of fluoride administration for home use that may be simply implemented by practitioners of medicine and dentistry and to review pertinent studies in this field.

Dosage of supplemental fluoride

To date no study of dietary fluoride supplementation has yielded as favourable or as precise a record of caries prevention as has been obtained from the cumulative effects of the daily consumption of water containing 1 ppm of fluoride ion. Therefore, at the present time, this experience is the best basis for arriving at an estimate of a suitable dosage of supplemental fluoride. However, many difficulties arise in attempting to translate this information into the optimal daily fluoride dosage for the individual.

A number of studies of total fluid consumption and, more important, of total tap water consumption have been carried out in various communities and for various age groups.[3–6] Neumann[5] found that in 312 Long Island children under the age of six years the daily tap water intake, including the amount added to fruit juices, was 300 ml. per day. In a study of kindergarten children, aged three to five years, Crosby and Shepherd[4] found a mean water consumption of 319 ml. per day in winter and 458 ml. per day in summer. These authors also found that water consumption by girls, aged 12 to 15 years, was 871 ml. and 1,829 ml. per day in winter and summer respectively. The influence of temperature on water intake was further substantiated by Galagan et al.[7] Waker et al[6] studied water consumption in children living in four dissimilar geographical areas. The total fluid intake increased with age from a mean of 740 ml. per day in infants, 0-2 months, to 1,247 ml. per day for children 12 years and older. Mean tap water consumption (including water added to such products as concentrated juices, evaporated milk, etc.) was less than one-half of total daily fluid intake and rarely exceeded 500 ml. per day, even in older children. These studies also indicated that the total fluid intake increases with age. However, total tap water intake, which constitutes the major source of fluoride in fluoridated areas, bears a less constant relation to age. There is a wide variation in total fluid and tap water consumption from individual to individual. The tap water consumption is further affected by the wide variety of modern-day techniques employed in the preparation of food; these involve reconstitution and dilution of food items to varying extents. The individual variation in consumption within any given age group amounts to as much as a sevenfold difference between the lowest and highest rates of total tap water consumption.[5]

In this report we have used McClure's estimates of average tap water intake of children[8] (Table 1) to compute our recommended dosages of supplemental fluoride (Table 2). McClure's estimates are based on a total fluid requirement of 1 ml. per calorie in the diet, of which 25 to 33 per cent is assumed to be drinking water.[9] These recommendations parallel the measured total tap water intakes of younger children reasonably well,[4–6] but are higher than estimates that would be derived from the total tap water consumption data for older children.[6]

On the basis of present information, the dosages recommended in Table 2 are reasonable. However, refinements are to be anticipated as more precise studies define the optimal dosage of supplemental fluoride intake for caries prophylaxis.

TABLE 1 Estimated daily intake of water and fluoride ion when water contains 1 ppm of fluoride.

Age (years)	Body weight (Kg.)	Water intake (litres)	Fluoride intake (ma. F^-)
1- 3	8-16	0.390-0.560	0.39-0.56
4- 6	13-24	0.520-0.740	0.52-0.74
7- 9	16-35	0.650-0.930	0.65-0.93
10-12	25-54	0.810-1.160	0.81-1.16

Adopted from McClure[8].

TABLE 2 Recommended dosage of fluoride (mg. F^-) according to age and natural fluoride content in water supplies.

Age	Natural fluoride ion content in water, mg./litre (or ppm)			
	0-0.25	0.25-0.50	0.50-0.75	0.75+
0-12 mos.	0.25	0	0	0
12 mos.-4 yrs.	0.50	0.25	0	0
4-8 yrs.	0.75	0.50	0.25	0
8-12 yrs.	1.00	0.75	0.50	0

No fluoride recommended for pregnant women (see text).

Natural sources of fluoride ion

Before defining specific measures by which the individual may receive a total fluoride intake approximating that noted in Table 1, it is important to examine the major natural sources of fluoride ion in human nutrition.

Water.—Highly variable amounts of fluoride are found in lakes and other water supplies across North America. The concentration of fluoride is lowest in rain water, and highest in some wells. In the United States 1,903 communities, with a combined population of seven million people, have water supplies that contain fluoride from natural sources in a high enough concentration (0.7 ppm or greater) to exert a caries reducing effect.[10] At present, no systematic study has been made of the natural content of fluoride in communal water supplies in Canada. In Ontario the concentration of fluoride ranges from 2.4 ppm in the town of Ripley and in Essex County, to 0.1 ppm in the areas supplied by the Great Lakes, such as Toronto.

Food.—The fluoride content of most food is below 1 ppm.[11,12] Under usual dietary conditions, the daily intake of fluoride from food is less than 0.5 mg. and is insufficient to exert a caries prophylactic effect. Only brewed tea contains significantly higher fluoride levels (1 ppm of F^-).

From this information, it is obvious that water is the major natural source of fluoride. Since a moderate degree of dental fluorosis may be observed in individuals ingesting approximately three times the recommended fluoride intake, the natural fluoride levels in water should be estimated and taken into account before prescribing fluoride supplements. In Canada and the United States, information regarding the concentration of fluorides in

water may be obtained from local, provincial, or state health departments.

Specific techniques of fluoride supplementation

In areas where the communal water is known to contain less than 0.7 ppm of fluoride ion, alternative methods of fluoride administration should be considered for selected individuals. It should be emphasized that, from a public health standpoint, home administration of fluoride is not a dependable substitute for communal fluoridated drinking water, since to be effective it requires extensive periods of exacting, intelligent co-operation in the individual household. Also, home fluoridation is more costly.

Use of Home-Fluoridated Water.—The procedure which most nearly duplicates municipal fluoridation in principle is the use in the home of water which has been adjusted to contain 1 ppm of fluoride. Practical details for the preparation, in the home, of drinking water containing 1 ppm of fluoride ion are given in Tables 3 and 4. If this water is used for all drinking and cooking purposes, the method would duplicate communal fluoridation, and as such would be expected to yield results similar to municipal fluoridation programs. This is the method of choice for administration of fluoride to infants since water intake is the regulator of the amount of fluoride ingested. Practical considerations may necessitate use of alternate procedures described below.

Use of Specific Fluoride Supplements.—For preschool children who consume very little water, or for school children who normally obtain much of their water outside the home, the practical technique for administering fluoride is as a supplement (either in drop form or crushed tablet) given once daily dissolved in a small volume of water or other liquid. Practical details are given in Tables 3 and 5.

The best estimate that can be made at present of a suitable total daily dosage of supplemental fluoride is based on the average computed fluoride intake of children of comparable ages living in fluoridated areas, as shown in Table 1. However, the actual amount of fluoride prescribed must be adjusted for the existing content of natural fluoride in the drinking water. Where the natural fluoride content of water is 0.7 ppm or over fluoride supplements should not be administered. When the concentration of fluoride in water supplies is less than 0.25 ppm, this small content may be neglected. Table 2 indicates the recommended dosage

TABLE 3 Suggested prescription for fluoride.*

(a) Stock fluoride solution (1.0 mg. F^- per ml.)

℞ sodium fluoride 0.11 Gm.
water to 50 ml.

Supply with dropper graduated for 0.25 ml. and 0.50 ml.

Sig.: Keep out of reach of children. Do not exceed recommended dosage.

(b) Fluoride tablets (0.25 mg. F^- per tablet)

℞ sodium fluoride 0.55 mg.

Supply: 200 tablets

Sig.: Keep out of reach of children. Do not exceed recommended dosage.

(For convenience, single-scored tablets, containing 2.2 mg. NaF (1.0 mg. F^-), may be prescribed for older children.)

*Proprietary preparations of sodium or potassium fluoride, in solution or in tablet form, which permit simple and accurate modulation of dosage according to age and natural fluoride content of water as indicated in Table 2 may be confidently used.

TABLE 4 Method of fluoride administration by household use of fluoridated water.

Formulation: Stock fluoride solution (1.0 mg. F- per ml.) or fluoride tablets (0.25 mg. F- per tablet, crushed) are added to 1 quart of water in the quantities shown depending upon the natural fluoride ion content of the existing water supply.

Prescription	Natural fluoride ion content of existing water		
	0-0.25 ppm	0.25-0.50 ppm	0.50-0.75 ppm
Stock fluoride solution (1 mg. F-/ml.)	1.0 ml.	0.5 ml.	0.25 ml.
Sodium fluoride tablet (0.25 mg. F-/tab)	4 tablets	2 tablets	1 tablet

Administration: To be used for all drinking purposes, preparation of juices and formulae, and for cooking.

of supplemental fluoride according to age and quantity of fluoride already present in natural water supplies. The increases in the amount of fluorine from infancy through childhood to early adolescence correspond to the increasing intakes which occur in communally fluoridated areas as children get older.

Examples of practical means of supplying these dosages are indicated in Table 3. Some proprietary fluoride preparations can also be adapted to supply the dosages indicated.

There are no hazards when fluoride supplements are used by reliable families in the manner prescribed. To safeguard against accidental poisoning of small children, it is recommended that no more than about 60 mg. of fluoride ion be dispensed at one time. This amount of fluoride is sufficient for two months' use at the rate of 1 mg. of fluoride ion per day, and is well below the lethal dose. The latter is approximately 2 to 5 Gm. of fluoride ion for adults and corresponds to an estimated dose of 350 to 700 mg.

TABLE 5 Method of fluoride administration by use of fluoride supplements.

Administration: Stock fluoride solution (1.0 mg. F- per ml.) or fluoride tablets (0.25 mg. F- per tablet) are administered according to the following schedule, once daily. Tablets should be crushed and dissolved in formula, water, milk or juice. The schedule makes allowance for age of child and natural fluoride ion content of existing drinking water supply.

Age of child	Natural fluoride ion content of existing water					
	0-0.25 ppm		0.25-0.50 ppm		0.50-0.75 ppm	
	Stock soln. 1 mg.F-/ml.	Tablet 0.25 mg.F-	Stock soln. 1 mg.F-/ml.	Tablet 0.25 mg.F-	Stock soln. 1 mg.F-/ml.	Tablet 0.25 mg.F-
0-12 mos.	0.25 ml.	1 tablet	0	0	0	0
12 mos.-4 yrs.	0.50 ml.	2 tablets	0.25 ml.	1 tablet	0	0
4-8 yrs.	0.75 ml.	3 tablets	0.50 ml.	2 tablets	0.25 ml.	1 tablet
8-12 yrs.	1.00 ml.	4 tablets	0.75 ml.	3 tablets	0.50 ml.	2 tablets

of fluoride ion for a 10 Kg. child.[13] The supply of fluoride tablets or solutions should be kept out of reach of children.

Mode of action of fluoride

For optimal benefits to the individual tooth, the ingestion of fluoride must be commenced during the pre-eruptive maturation of the surface of the enamel.[14] To illustrate, a specific tooth, the first permanent molar, may be considered. A child may commence ingestion of fluoridated water as late as three to four years of age, at which time the crown of the first permanent molar is well formed, and still receive optimal benefits from fluorides. This phenomenon is explained on the basis of fluoride deposition on the surface enamel, prior to eruption, in sufficient concentrations to reduce dental caries.

Since most of the enamel surface of the deciduous teeth is formed after birth, administration of fluoride during pregnancy should not be necessary in order to obtain a significant caries prophylactic effect on the deciduous teeth. This hypothesis is confirmed by Carlos[15] who was unable to show any benefit from fluoridated water consumed by the mother during pregnancy. It should be stated that there is no proved contra-indication to fluoride administration during pregnancy; it is simply not necessary.

Fluoride administration should commence shortly after birth and continue until the second permanent molars have erupted at the age of 12 to 14 years. The third permanent molars will not benefit by this program, but since they develop much later in life, and are often removed, a reasonable age to stop administration of supplemental fluoride is after eruption of the second permanent molars.

In communally fluoridated areas, the consumption of water containing 1 ppm of fluoride continues throughout life. The use of fluoride tablets or concentrated fluoride solutions departs from the above since it is suggested that administration be stopped at the end of 12 to 14 years. Epidemiological and chemical studies indicate a modest but significant topical effect from fluoridated water ingested beyond this age.[16–22] Thus, the long-range effect of ingestion of fluoride supplements on caries prophylaxis will probably be less than that obtained by communal water fluoridation programs. Topical applications of fluoride, using stannous fluoride, sodium fluoride, or fluoride-phosphate solutions, may be advisable in conjunction with and particularly after cessation of systemic fluoride therapy in order to provide a suitable means of increasing fluoride concentration on the enamel surface. The use of a dentifrice containing a satisfactorily stabilized form of fluoride is also recommended, both in childhood and during adult life, in order to increase further the amount of fluoride which is deposited on the enamel surface.[23]

Results obtained with fluoride supplementation

Caries Reduction Using Fluoride Concentrates.—Each of the alternative methods of administering fluoride is a significant departure from ingestion of fluoride in water at a level of 1 ppm. Hence, these methods can be adequately evaluated only when a sufficient number of studies have been completed.

Several studies involving ingestion of sodium fluoride tablets, in amounts ranging from 0.5 to 1.0 mg. of fluoride ion per day, have been published.[24–36] Some of these studies lack the definitive character of communal water fluoridation surveys because of the small samples investigated, the short periods of study and, in some instances, the inadequate experimental design. However, a significant trend is apparent in the published studies indicating that a reduction of caries following ingestion of tablets containing fluoride can be expected in teeth that develop during the period of ingestion. The degree of protection has not been ascertained. In addition, the duration of the effect is

unknown, since the longest study extends only over an eight-year period.

In one of the major reports, Wrozdek[34] administered sodium fluoride tablets to a group of 13,585 first, second and third grade level school children, and reported a 20 per cent caries reduction at the end of a four-year period.

Arnold[35] reported a reduction in dental caries in 121 children of parents of professional groups after ingestion of fluoride tablets every day for an average of two-thirds of their lives. His study had no adequate controls and since the incidence of dental caries in children of professional groups is significantly lower than in other groups the significance of the study cannot be assessed.

In a study by Feltman and Kosel,[36] fluoride tablets (one of either calcium fluoride containing 1.0 mg. of fluoride ion, sodium fluoride containing 1.2 mg. of fluoride ion, or sodium monofluorophosphate containing 0.825 mg. of fluoride ion) were ingested since birth by 300 children whose ages, at the end of the study, ranged from three to 12 years, and by gravid women. A significant caries reduction was claimed for the experimental group. Since the experimental design did not include a control group receiving fluorides early in the postnatal period, there is no support for the authors' conclusion that children who received fluorides during the prenatal as well as the postnatal period derived greater caries protection than those who commenced fluoride therapy after birth. Nor are data presented to support the claim that "fluorides ingested during the first or second trimester of pregnancy produce benefits as seen in the incidence of dental caries, and have no value if begun in the third trimester." It is interesting that a few cases of dental fluorosis were observed in this study. The most probable explanation for this finding is the administration of a single level of fluorides to all age groups. Thus, in one of the sodium fluoride groups, infants and young children received 1.2 mg. of fluoride per day, a dose which for infants is three to five times greater than that recommended by others.

The potential caries prophylactic effect of fluoride may also be deduced from a knowledge of the concentration of fluoride in enamel, particularly in the surface layers. In areas where water was adjusted to 1 ppm with an associated significant caries reduction, the fluoride concentration in whole enamel of the deciduous dentition was found to be in the range of 100 to 170 ppm, as compared to a range of 40 to 80 ppm in non-fluoride areas.[21,37] The studies of Arnold[35] and Held and Piguet[26] both indicate a significantly higher content of fluoride in the enamel of teeth in groups ingesting fluoride tablets than in the non-fluoride groups. No comprehensive studies have been published that would enable one to determine whether enamel fluoride concentrations comparable to those found in communal fluoridated areas can be attained by fluoride supplements.

On the basis of the above studies, it may be concluded that judicious use of concentrated fluoride preparations results in a significant caries reduction; whether the caries reduction is of the same magnitude as that reported from areas with communal fluoridation programs is unknown.

Results Using Fluoride in Salt.—Addition of fluorides to table salt has been suggested as a relatively simple and inexpensive procedure. The precedent for this is the addition of iodide to salt to prevent endemic goitre. The main disadvantages relate to the great variability of salt ingestion and the very low salt intake by infants and growing children with consequent reduction of the benefits of fluorides to the deciduous dentition.

Kitchen salt containing 200 mg. of sodium fluoride and 10 mg. of potassium iodide per kilogram of salt has been provided to large sections of the population of Switzerland.[38–39] Marthaler[40] and Marthaler and Schenardi[41] reported a statistically significant caries reduction in school children who ingested fluoridated salt. The inhibition was most pronounced

on smooth surfaces with only a small effect on occlusal caries. The average daily dose of fluoride received from the salt in the above studies was estimated to be about half the amount that is considered optimal as judged by water fluoridation studies. The studies provide evidence that fluorides are absorbed from salt and can exert a significant caries prophylactic effect.

Effect of Fluorides in Milk.—Milk has also been suggested as a possible vehicle for fluoride. Rusoff et al[42] reported a reduction in the incidence of dental caries in cuspids and bicuspids for a small group of children who received milk containing 1 ppm of fluoride for over four years. Similar studies are in progress in Switzerland,[43] but results are at present not available.

There is evidence, however, that the high protein and calcium concentrations in milk may interfere with absorption of fluoride, and the optimal dosage of fluoride in milk has not yet been satisfactorily established. A comparison of the absorption rates of fluoride from milk and from water, as reflected by serum fluoride levels in rats, indicated a significant reduction in fluoride absorption from milk during the first hour, but thereafter absorption continued at higher levels for the next three hours.[44] In humans, the average four-hour urinary excretion of fluoride (F^{18}) was about 20 per cent higher in subjects consuming fluoride in water than in those receiving fluoride in milk.[44]

Multiple vitamin-fluoride supplements

Although some of the commercially available vitamin-fluoride combinations may satisfactorily answer the requirements in individual cases, the authors consider that these products have a number of important drawbacks. The fixed formulation of the multiple preparations does not permit control over the dosage of the individual constituents. Thus, it is not feasible to adjust the supplemental fluoride intake for age of the patient nor for concentrations of fluoride already present in the drinking water.[45] Similarly, it is not readily possible to modulate the amount of supplemental vitamin D in order to compensate for the variable and frequently excessive intakes obtained from commercially enriched foods.[46] Since a considerable time must elapse before the deleterious effects of excessive or insufficient intake of fluorides or vitamin D will become manifest, misuse of the combined medication would not be readily apparent. Therefore, at the present time, we are hesitant to recommend the use of vitamin-fluoride preparations until long-range studies establish their efficacy in clinical practice.

Summary

We have reviewed the data that bear upon the efficacy of fluoride supplementation in the prevention of dental caries. There is now sufficient information to conclude that such supplements, if properly used, will reduce the incidence of caries in children. It is not yet possible, however, to state how the degree of protection compares with regular consumption of communally fluoridated drinking water in the individual case.

We suggest a dosage schedule of supplemental fluoride for children of various ages based upon published figures for average water consumption of the different age groups. We also indicate practical means by which this dose can be safely administered while, at the same time, taking into account the age of the child and the natural fluoride content of the existing water supply.

At present we do not recommend multiple vitamin-fluoride preparations for general use, since modulation of the intake of the various individual components is difficult, and since hazards are compounded if a multiple preparation is misused.

We emphasize that the success and

safety of any system of home fluoridation requires some 12 years of exacting, intelligent co-operation. Therefore, these techniques are less desirable as a general public health measure than is communal water fluoridation, and should be prescribed only after careful consideration of the individual circumstances.

Résumé

Les succédanés du fluor, si on les utilise à bon escient, diminuent l'incidence de la carie. La protection qu'ils offrent, en comparaison avec l'absorption d'eau fluorée par les aqueducs, est bien connue.

Les auteurs établissent pour les enfants d'âges différents un dosage de consommation de fluor autre que celui trouvé dans l'eau basé sur des statistiques au sujet de la consommation moyenne d'eau à ces différents âges. Ils suggèrent, en tenant compte de l'âge de l'enfant et de la teneur en fluor de l'eau de leur municipalité, des moyens pratiques d'établir la dose idéale.

Des composés de vitamines et de fluor ne sont pas à conseiller pour un usage général à cause de la variation des besoins de chaque individu pour ces substances. Tout système pour fluorer l'eau à domicile, pour être efficace et sûr, nécessite une coopération intelligente et précise d'une douzaine d'années.

Ces méthodes, comme mesures générales d'hygiène publique, ne peuvent pas se comparer à la fluoration de l'eau des aqueducs. Elles peuvent s'utiliser qu'après une étude approfondie des circonstances particulières.

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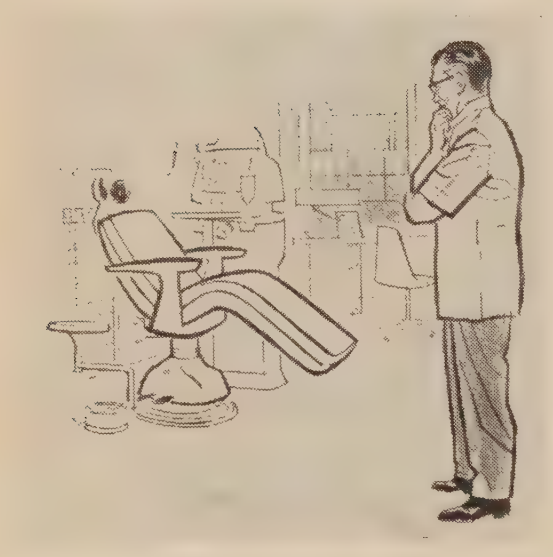

Indices reflecting demand for dental services in British Columbia, 1962

F. McCombie, L.D.S., R.C.S. (Eng.), D.D.P.H., and D. Stothard,† B.A., Victoria, British Columbia*

At the 1962 meeting of the Board of Governors of the Canadian Dental Association, and arising out of the report of the Council on Public Health, it was agreed that it would be ". . . very desirable to gather factual information concerning the complex factors involved in the demand for dental services."[1] Accurate information regarding "demand for treatment" as distinct from "need for treatment" is an essential adjunct for the proper evaluation of available dental health services. In addition, such information is also necessary prior to the consideration of any programs designed to meet present "demands" or to prepare to meet present or future "needs."

*Director, Division of Preventive Dentistry, and †Research officer, British Columbia Health Branch.

Demand for dental service has not and, perhaps, cannot be simply and accurately measured. However, the effectiveness with which this demand is met in a given community can be evaluated, although any such evaluation is influenced to a degree by availability of dental services as well as the actual demand per se for these services. The availability of dental services is not a constant factor, and can be increased by improving the ratio of dentists to population and/or incorporating improved and more efficient methods and facilities within already established dental practices. Despite the limitations associated with comparisons between areas and at different periods of time, it was considered desirable to explore various indices designed to evaluate the effectiveness with which demand for dental treatment is currently being met in British Columbia.

Such information is especially meaningful in British Columbia at the present time. In the summer of 1962 the University of British Columbia announced the appointment of the first dean of dentistry and, subsequently, plans for the early establishment of a dental school. It therefore became imperative that valid evidence be available for the recruiting of dental students of high calibre in order to demonstrate that upon their graduation an effective demand for their services exists in British Columbia.

Present rates and measures

Although the National Dental Health Index of the Canadian Dental Association was not designed to provide quantitative estimates of dental treatment needs,[2] nevertheless from the data available thereby some comparisons can be made between communities and geographic regions in regard to differing levels of treatment needs.[2] Rather precise, although limited, data are also thereby available in respect to the treatment needs of younger age groups, especially as pertaining to dental caries. Nevertheless, the translation of such needs into chair-hours of treatment would be hazardous without further information. Even if this could be accomplished it is clear that the dental treatment needs of an individual, family or community are not always translated into effective demand for the necessary treatment.

A measure often used to describe the availability of dental services in a community or region is the ratio of the population per dentist or the number of dentists per 10,000 population.[3] However, even though British Columbia had in January of 1962 the lowest population per dentist ratio among the provinces of Canada, there was still much dissatisfaction voiced by the public and verified by members of the dental profession regarding the difficulty and delay in obtaining a dental appointment. Furthermore, the total effective demand for dental treatment within a community may be greater or less than can be provided by the dental services available. These measures of need for and availability of dental treatment also do not take into consideration the fact that demand for dental treatment is directly related to other factors such as educational background, social status, income, etc.[4]

Utilization rates such as "one-third of the (Canadian) population had received some dental treatment during that year (1958)"[2] can only reflect changes in effective demand when the dental practitioners of an area are not working at full-time capacity.

None of these presently utilized measures are suitable for the purpose of accurately measuring demand for dental treatment. It was therefore decided to seek new criteria to evaluate the levels at which the effective demand for dental services is currently being met in British Columbia and to demonstrate whether or not different levels pertain in the various regions of the province. If a methodology could be devised to achieve this purpose, the base-line data so provided would, of course, be invaluable for comparisons in future years. Furthermore, such a

methodology, if demonstrated effective, could provide some guidance toward further studies designed to study "the complex factors involved in the demand for dental care."

Procedure

A questionnaire was prepared with the co-operation of the Dental Health Committee of the British Columbia Dental Association. This questionnaire was mailed, with a covering letter, to all dentists currently licensed and practising in British Columbia in September 1962.

Although objective criteria are considered to be more reliable, it was decided to include both subjective and objective items in the questionnaire. The subjective items were used primarily as indicators of demand for treatment and as a means of testing to some extent the results of the objective queries. Furthermore, it could not be foreseen whether the objective queries would produce results of significant magnitudes so that the differences among them would be meaningful and capable of interpretation.

The questionnaire firstly included items relating to personal classification data such as size of community in which the respondent's practice was located, type of practice, age of dentist, year of graduation, and area of the province in which the practice was located.

To indicate the current level of demand on available dental services five questions were asked as follows:

1. Presuming the patient was not an emergency case, how long would a *new* patient have to wait for an appointment?
   (a) for initial examination
   (b) for operative session
   (c) no new patients can be accommodated
2. Do you generally recall most of your regular patients approximately every six months?
3. Presuming the child was not an emergency case, how long would a *new child* patient have to wait for an operative session outside of regular school hours or could no appointment be given?
4. Please check one phrase below which you feel best describes your practice at this time.
   (a) Too busy to treat all patients requesting appointments
   (b) All patients receive appointments but pressure of practice too heavy
   (c) "Just right"—sufficient but not too many patients
   (d) Not busy enough
5. Is there a need in your community at this time for one or more additional dentists?

In addition, information was also requested in regard to the present employment of dental hygienists in the practice and the attitude of the dentist toward such assistance as and when available.

The completed questionnaires were forwarded to the Division of Vital Statistics of the British Columbia Health Branch where the information was transferred to punch cards to facilitate tabulation and subsequent analysis of the data.

Results

A total of 693 questionnaires was distributed, and 465 (67 per cent) were completed and returned. This compared most favourably with returns (36 per cent) by British Columbia dentists to the Canadian Dental Association's 1958 Survey of Dental Practice.[5]

Of the 465 questionnaires returned seven were received from public health dentists. Since the items on the questionnaire related primarily to private practice, none of the data received from public health dentists are included in the results reported here.

There were 434 questionnaires completed and returned by general dental practitioners. This represents nearly 95 per cent of the total of 458 tabulated. Seven questionnaires (1.5 per cent) were returned by dentists operating restricted practices and 15 (3.3 per cent) were returned by dental specialists. Certified dental specialists in British Columbia represented at the time of the survey 3.6 per cent of all practising dentists. Replies

TABLE 1 Indicated employment of available dental hygienists, by age of dentist, British Columbia, 1962.

Would employ dental hygienist if available	Age of dentist													
	Under 30		30-39		40-49		50-59		60 and Over		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Full-time	4	6.9	20	11.2	24	19.5	2	3.8	3	7.0	—	—	53	11.6
Part-time	29	50.0	97	54.2	56	45.5	17	32.1	6	14.0	1	50.0	206	45.0
No.	25	43.1	58	32.4	39	31.7	31	58.5	32	74.4	—	—	185	40.4
Not stated	—	—	4	2.2	4	3.3	3	5.6	2	4.6	1	50.0	14	3.0
Total	58	100.0	179	100.0	123	100.0	53	100.0	43	100.0	2	100.0	458	100.0

TABLE 2 Indicated employment of available dental hygienists, by location of practice, British Columbia, 1962.

Would employ dental hygienist if available	Location of practice																	
	Greater Victoria		Vancouver Island		Greater Vancouver		Fraser Valley		Okanagan		Kootenays		Northern		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Full-time	6	10.5	6	20.7	23	10.5	9	13.2	5	13.5	3	15.0	1	3.9	—	—	53	11.6
Part-time	15	26.3	10	34.5	92	41.8	39	57.4	20	54.1	10	50.0	20	76.9	—	—	206	45.0
No	36	63.2	12	41.4	95	43.2	20	29.4	12	32.4	5	25.0	5	19.2	—	—	185	40.4
Not stated	—	—	1	3.4	10	4.5	—	—	—	—	2	10.0	—	—	1	100.0	14	3.0
Total	57	100.0	29	100.0	220	100.0	68	100.0	37	100.0	20	100.0	26	100.0	1	100.0	458	100.0

TABLE 3 Recall of regular patients approximately every six months, by age of dentist, British Columbia, 1962.

Recall regular patients	Age of dentist													
	Under 30		30-39		40-49		50-59		60 and over		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	52	89.7	151	84.3	104	84.5	41	77.4	26	60.5	2	100.0	376	82.1
No	4	6.9	27	15.1	15	12.2	11	20.7	16	37.2	—	—	73	16.0
On request only	—	—	—	—	1	0.8	—	—	1	2.3	—	—	2	0.4
Not stated	2	3.4	1	0.6	3	2.5	1	1.9	—	—	—	—	7	1.5
Total	58	100.0	179	100.0	123	100.0	53	100.0	43	100.0	2	100.0	458	100.0

TABLE 4 Recall of regular patients approximately every six months, by location of practice, British Columbia, 1962.

Recall regular patients	Location of practice																	
	Greater Victoria		Vancouver Island		Greater Vancouver		Fraser Valley		Okanagan		Kootenays		Northern		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	45	78.9	21	72.4	190	86.4	55	80.9	30	81.1	14	70.0	21	80.8	—	—	376	82.1
No	12	21.1	8	27.6	25	11.4	12	17.6	6	16.2	4	20.0	5	19.2	1	100.0	73	16.0
On request only	—	—	—	—	2	0.9	—	—	—	—	—	—	—	—	—	—	2	0.4
Not stated	—	—	—	—	3	1.3	1	1.5	1	2.7	2	10.0	—	—	—	—	7	1.5
Total	57	100.0	29	100.0	220	100.0	68	100.0	37	100.0	20	100.0	26	100.0	1	100.0	458	100.0

TABLE 5 Dentist's appraisal of own practice by age of dentist, British Columbia, 1962.

Pressure of practice	Age of dentist													
	Under 30		30–39		40–49		50–59		60 and over		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Too busy to treat all patients	7	12.1	47	26.3	37	30.1	15	28.3	6	14.0	—	—	112	24.5
Can treat all patients but pressure too heavy	8	13.8	36	20.1	28	22.8	8	15.1	6	14.0	—	—	86	18.8
Volume just right	30	51.7	75	41.9	49	39.8	25	47.2	27	62.7	2	100.0	208	45.4
Not busy enough	13	22.4	21	11.7	8	6.5	4	7.5	4	9.3	—	—	50	10.9
Not stated	—	—	—	—	1	0.8	1	1.9	—	—	—	—	2	0.4
Total	58	100.0	179	100.0	123	100.0	53	100.0	43	100.0	2	100.0	458	100.0

from dental specialists and dentists operating restricted practices are included in the following analyses.

The item which relates to the population size of the community in which the dentist's practice is located appeared to produce inconsistent responses, especially in the large metropolitan centres. Some dentists confined this estimate to the population immediately surrounding their practice in a large urban settlement from which most of their patient-load was drawn. In some of the rural communities, however, the population for an entire district was indicated instead of the population within the municipality or village served. For these reasons data from this item are not reported.

Employment of Dental Hygienist. — Of the dentists who completed the survey questionnaire, only 6 (1.3 per cent) employed a dental hygienist full-time and a further 13 (2.8 per cent) employed a dental hygienist on a part-time basis. However, 53 (11.6 per cent) dentists indicated that they would employ a hygienist full-time and a further 206 (45.0 per cent) would employ a hygienist part-time, provided such personnel were available. The distribution of replies to this question by age of dentist and locale of practice is shown in Tables 1 and 2.

Recall Practices. — The recall of regular patients approximately every six months was reported on 376 (82.1 per cent) of the completed questionnaires. This practice appeared to be carried out to the greatest degree by the younger dentists (89.7 per cent of dentists under 30 years of age) and least of all by the older practitioners (60.5 per cent of dentists 60 years and over) as shown in Table 3. Table 4 indicates that the differences in recall of patients were not too striking among the various regions of the province.

Pressure of Practice. — The personal appraisal of the dentists in regard to the level of activity of their practices was most interesting. There were 112 (24.5 per cent) of the dentists who reported they were too busy to accommodate all patients seeking treatment, and a further 86 (18.8 per cent) who reported that the pressure of their practice was too heavy. Only 50 (10.9 per cent) of the dentists reported they were not busy enough.

Table 5 reveals clearly that the maximum demand was experienced by dentists in the age group from 40 to 49 years. Age groups above and below this age span reported progressively less pressure or demand for treatment. Table 6 discloses considerable variation between the various regions of the province. A shortage of dental services is indicated in the Kootenays, Vancouver Island (excluding Greater Victoria), and the Northern region, and to a lesser extent in the Fraser Valley area.

TABLE 6 Dentist's appraisal of own practice, by location of practice, British Columbia, 1962.

Pressure of practice	Location of practice																	
	Greater Victoria		Vancouver Island		Greater Vancouver		Fraser Valley		Okanagan		Kootenays		Northern		Not stated		Tota	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Too busy to treat all patients	13	22.8	12	41.4	45	20.4	20	29.4	6	16.2	9	45.0	7	26.9	—	—	112	24 5
Can treat all patients but pressure oo heavy	10	17.5	11	37.9	26	11.8	16	23.5	5	13.5	7	35.0	11	42.3	—	—	86	18.8
Volume just right	27	47.4	4	13.8	120	54.6	24	35.3	23	62.2	3	15.0	7	26.9	—	—	208	45.4
Not busy enough	7	12.3	2	6.9	27	12.3	8	11.8	3	8.1	1	5.0	1	3.9	1	100.0	50	10.9
Not stated	—	—	—	—	2	0.9	—	—	—	—	—	—	—	—	—	—	2	0.4
Total	57	100.0	29	100.0	220	100.0	68	100.0	37	100.0	20	100.0	26	100.0	1	100.0	458	100.0

Need for Additional Dentists. — The respondents' opinions regarding the need for additional dentists in their respective communities were relatively unrelated to the age of the respondent (Table 7). However, it may be noted that increasing age appears to induce a greater caution in answering such a question.

Tabulation of replies to this question by region (Table 8) revealed that the highest percentages of dentists replying in the affirmative were located in regions where the pressure of practice was heaviest (as shown in Table 6).

Delay in Securing Appointments. — The mean number of reported days before an appointment could be given (except for emergency treatment) for initial examination, for an operative session, or for a new child patient outside of regular school hours is shown by age of dentists (Table 9) and by locale of practice (Table 10).

It is again demonstrated that the greatest pressure is upon the dentists of the age-group 40 to 49 years, although in regard to acceptance of new child patients there is perhaps a slightly heavier pressure on the dentists aged 30 to 39 years.

The effects of the shortage of dental services in the Kootenays, Vancouver Island (excluding Greater Victoria) and the Northern region are demonstrated in Table 10. There is a close similarity between the Okanagan and Fraser Valley regions where the periods of delay, except for an initial appointment, were less than in the above three regions but greater than in Greater Victoria and Greater Vancouver.

Discussion of results

Table 11 facilitates the comparison of the results of the various criteria. The approximate population per dentist has been included merely as an indication of the availability of dental services within the regions of British Columbia.

Since many of the results seemed to be significantly influenced by the age of the responding dentist, a comparison was made of age distributions of the dentists for each of the areas considered. It was found that these region-specific age distributions were very similar, so that the differences which did occur among regions were the result of other factors.

The three subjective criteria included in Table 11, namely, employment of a dental hygienist, pressure of practice, and need for more dentists, exhibit a fairly regular pattern and seem to be consistent with the replies to the objective criteria,

TABLE 7 Dentist's appraisal of need for more dentists, by age of dentist, British Columbia, 1962.

Need for more dentists	Age of dentist													
	Under 30		30-39		40-49		50-59		60 and over		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	22	37.9	76	42.5	43	34.9	19	35.8	10	23.3	—	—	170	37.1
No	33	56.9	94	52.5	67	54.5	26	49.1	23	53.4	1	50.0	244	53.3
Not stated	3	5.2	9	5.0	13	10.6	8	15.1	10	23.3	1	50.0	44	9.6
Total	58	100.0	179	100.0	123	100.0	53	100.0	43	100.0	2	100.0	458	100.0

TABLE 8 Dentist's appraisal of need for more dentists, by location of practice, British Columbia, 1962.

Need for more dentists	Location of practice																	
	Greater Victoria		Vancouver Island		Greater Vancouver		Fraser Valley		Okanagan		Kootenays		Northern		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Yes	19	33.3	19	65.5	70	31.8	24	35.3	6	16.2	13	65.0	19	73.1	—	—	170	37.1
No	30	52.7	10	34.5	120	54.6	42	61.8	29	78.4	6	30.0	7	26.9	—	—	244	53.3
Not stated	8	14.0	—	—	30	13.6	2	2.9	2	5.4	1	5.0	—	—	1	100.0	44	9.6
Total	57	100.0	29	100.0	220	100.0	68	100.0	37	100.0	20	100.0	26	100.0	1	100.0	458	100.0

TABLE 9 Mean number of days before an appointment could be given, by age of dentist, British Columbia, 1962.

Mean number of days before appointment for:	Age of dentist						
	Under 30	30-39	40-49	50-59	60 and over	Not stated	Total
Initial examination	10.7	11.0	13.1	11.6	9.8	7.0	11.5
Operative session	24.9	31.1	38.5	26.3	11.6	17.5	30.1
New child patient	31.9	43.3	41.7	29.8	14.8	17.5	37.9

namely the number of days before an appointment could be given, under stated circumstances.

The first of these subjective criteria, employment of available dental hygienists either full-time or part-time, may be presumed to be influenced a great deal by factors not necessarily related to demand for treatment. These factors may indicate the individual dentist's attitude toward the delegation of duties to auxiliary dental personnel, and also the acceptability to himself of his performing a routine and often time-consuming procedure such as a prophylaxis or topical application of a fluoride solution.

There is a problem of interpretation associated with the criterion relating to pressure of practice. It is probable that an acceptable workload for one dentist would represent an unmanageable burden or be too light for another dentist.

Many of the respondents (44) hesitated to answer the question relating to the third of the subjective criteria, namely, need for more dentists. Of these, 38 were dentists who practise in the two large urban centres of Greater Victoria and Greater Vancouver. That they did not reply to the question perhaps indicates that they were quite uncertain as to the demands on the services of other dentists in the same area.

The replies to the question concerning the recall of regular patients approximately every six months appeared to have been influenced a great deal by the age of the responding dentist (Table 3). The small differences among the regions of the province were not revealing. The replies to this question are perhaps more a matter of practice management policy than an indication of pressure of practice. Furthermore, this would not reflect the demands of the transient part of the dentists' total caseload, nor would it necessarily reflect the demands on restricted or specialty practices.

The remaining three objective criteria concern the number of days before an appointment could be given for an initial examination or operative session, or the number of days before a new child patient can receive an operative session outside regular school hours. This latter criterion is, of course, dependent to some degree upon local policies governing the release of children during school hours to attend their family dentist. Furthermore, if school and public health dental programs were expanded for certain age groups, the dental demands of these particular groups might become of less concern to the dentist in private practice and, from the point of view of the development of these criteria, less accurate as an indicator of total dental demand. The numbers of days a new adult patient must wait for an initial examination and an operative session are influenced by differing methods of practice management, the first to a much greater degree than the second. Among the regions considered in this study, the mean numbers of days before an operative session could be granted provided differences greater than those indicated by the mean numbers of days before an initial examination, thus perhaps permitting a more accurate interpretation and assessment of the results.

However, since these criteria utilized data derived only from dentists in private practice and not from the general public, the results are predicated on the assumption that there are one or more dentists practising in each region. For any areas or regions under consideration which do not have dental services available, the extreme but fallacious inference, utilizing only these criteria, would be that there did not exist any demand for dental services. Furthermore, if for two or more areas of comparable population the mean numbers of days before appointments for either initial examinations or operative sessions are equal, or nearly equal, the actual levels of dental demand will be equal only if the same number of dentists serve each of these populations at the same level of practice efficiency.

For these reasons it is suggested that the demand for dental services be indicated by a study of both the population per dentist and the mean number of days

TABLE 10 Mean number of days before an appointment could be given, by location of practice, British Columbia, 1962.

Mean number of days before appointment for:	Location of practice								
	Greater Victoria	Vancouver Island	Greater Vancouver	Fraser Valley	Okanagan	Kootenays	Northern	Not stated	Total
Initial examination	10.7	17.1	10.7	10.6	9.4	22.2	10.8	—	11.5
Operative session	17.3	53.6	20.8	32.7	31.1	79.6	61.6	—	30.1
New child patient	30.7	60.7	31.8	38.4	37.5	59.7	63.1	—	37.9

TABLE 11 Synopsis of results by region ranked according to demand for treatment, British Columbia, 1962.

Location of practice	Number of dentists responding	Approximate population per dentist		Criteria													
				Would employ dental hygienist if available		Recall regular patients		Too busy or pressure of practice too heavy		Need for more dentists		Number of days before appointment for:					
												Initial examination		Operative session		New child patient	
		Ratio	Rank	%	Rank	%	Rank	%	Rank	%	Rank	Mean	Rank	Mean	Rank	Mean	Rank
Greater Victoria	57	1:1850	1	36.8	1	78.9	5	40.3	3	33.3	3	10.7	3	17.3	1	30.7	1
Greater Vancouver	220	1:1850	1	52.3	2	86.4	1	32.2	2	31.8	2	10.7	3	20.8	2	31.8	2
Fraser Valley	68	1:3100	3	70.6	6	80.9	3	52.9	4	35.3	4	10.6	2	32.7	4	38.4	4
Okanagan	37	1:3100	3	67.6	5	81.1	2	29.7	1	16.2	1	9.4	1	31.1	3	37.5	3
Vancouver Island	29	1:3450	5	55.2	3	72.4	6	79.3	6	65.5	6	17.1	6	53.6	5	60.7	6
Kootenays	20	1:3650	6	65.0	4	70.0	7	80.0	7	65.0	5	22.2	7	79.6	7	59.7	5
Northern	26	1:4400	7	80.8	7	80.8	4	69.2	5	73.1	7	10.8	5	61.6	6	63.1	7
British Columbia*	458	1:2400		56.6		82.1		43.3		37.1		11.5		30.1		37.9	

*Includes one dentist whose practice location is not stated.

before an appointment for an operative session can be given. On this basis, if two areas have the same population per dentist but the first has a longer mean waiting period, then in this first area there exists a greater demand for dental services than in the second. Similarly, if two areas have the same mean waiting period but the first has a smaller population per dentist, then this first area has the higher level of dental demand, assuming in both instances comparable levels of practice efficiency.

These results are intended only as a relative indication of demand for dental services, and are not intended as absolute indices for the assessment of this demand. It must also be noted that these results have been derived from data received only from the practising dentists of British Columbia, and are thus reliant upon both the methods of practice management and the particular population served by these practices at the present time. Further studies are indicated in order to evaluate the applicability of these criteria to other provinces and regions of Canada.

The most effective criterion determined by this study for the evaluation of demand for available dental services is a joint consideration of the population per dentist and the mean number of days a new, non-emergency patient would have to wait for an appointment for an operative session.

Summary

There exists at the present time a need for information relating to the factors involved in the demand for dental treatment. Before these factors can be defined it would be desirable to have a methodology which would measure as accurately as possible demand for treatment. Since data from currently utilized rates and measures do not yield the desired information it is necessary to create and test new criteria.

Questionnaires containing a number of possible criteria for the measurement of dental demand were mailed to practising dentists in British Columbia. The results of this study demonstrated that the most valid indicator of demands for available dental services was a joint consideration of the population per dentist and the mean number of days before a new non-emergency patient could receive an appointment for an operative session.

Résumé

La profession a actuellement besoin de renseignements au sujet des facteurs qui influencent la demande pour des traitements dentaires. Il faudrait donc, avant d'identifier ces facteurs, instituer une méthodologie qui permettrait d'évaluer aussi exactement que possible la demande pour des traitements. Il faut créer et expérimenter de nouveaux critères, car les tables et les jalons utilisés jusqu'ici ne donnent pas les renseignements voulus.

On a expédié par la poste à tous les dentistes exerçant dans la province de Colombie britannique un questionnaire contenant un certain nombre de critères possibles pour mesurer la demande pour des services dentaires. Cette recherche a montré que l'indicateur le plus certain pour évaluer la demande pour des services dentaires disponibles se trouve dans la proportion des dentistes en rapport avec la population et dans la moyenne de jours s'écoulant entre la date où un nouveau patient, qui n'a pas besoin de soins d'urgence, demande un rendez-vous et celle où il l'obtient pour une séance de traitement.

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Health Branch,
Parliament Buildings

Erythema multiforme exudativum: review and case reports

J. V. P. Chatwin, D.D.S.,*

Canadian Armed Forces, Europe

The condition of erythema multiforme exudativum, resulting in mucocutaneous ocular syndromes with a wide variety of names (Stevens-Johnson, Behcet, von Hebra, Reiter), so-called as the eyes, skin, oral cavity and genitalia are variously affected, has resulted in a great deal of confusion both in classification and diagnosis.

Oral manifestations of this disease are associated with an acutely painful stomatitis often with coalesced vesicles involving the lips and oral mucosa. Lesions may be found, usually bilaterally symmetrical, on the dorsum of the hands and feet, and involving the genital regions. There is often an acute inflammatory phase and usually an associated generalized malaise.

Ormsby and Montgomery[1] defined the broad condition as an "acute inflammatory disease characterized by crimson red or purplish red macules, papules or nodules, occasionally by vesicles or bullae and rarely by pustules. The lesions are variously grouped or isolated and prone to recurrence."

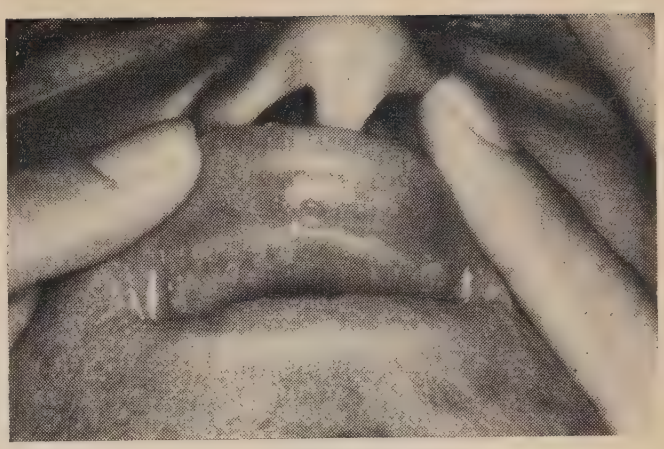

FIGURE 1

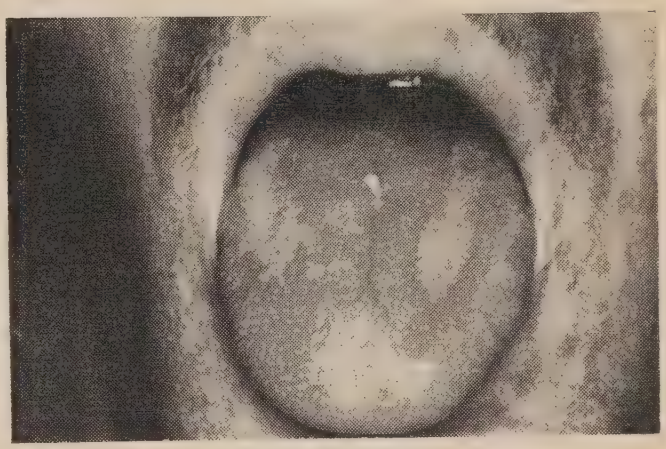

FIGURE 2

FIGURE 3

FIGURE 4

*Major, Royal Canadian Dental Corps, No. 4 Field Dental Company.

The frequent development of oral manifestations of this disease make this condition one of particular interest to the dentist. Two cases are reported.

Case No. 1

History and Examination.—This 26-year-old airman was admitted to hospital on August 20, 1962 with a history of malaise, sore throat, skin rash and soreness of the glans penis, which he had noticed six days previously. The condition was first evidenced as numerous, reddish, slightly-itchy lesions on the palms of his hands and soles of his feet. They increased in number during the next two days and spread to the extensor surfaces of his arms and legs. Soreness then developed in the mouth and throat and he was referred for admission.

He recalled in 1954 having a bout of red, raised lesions on his hands, elbows and knees. These were treated with calamine lotion and cleared up. In 1955 he had numerous pustules on both hands. In 1958 he had another attack complicated by a sore mouth. Again in late 1958 he had further attack with lesions in the mouth and on the penis. Medical records showed that an examination at that time revealed ulcers and whitish areas of exudate scattered throughout the mouth. Serological examination results were negative. The treatment included erythromycin, silver nitrate and neomycin. The condition cleared within a week. He had a recurrence of both oral and penile lesions in 1959. This attack was diagnosed as aphthous ulcers.

On examination, the mucous membrane was a fiery red colour involving the gingival and buccal portions of the mouth and pharynx. Necrotic mucosal sloughs, some of which were large with denuded areas, fiery red in colour, were noted on the buccal mucosa, the palate and the tongue (Figures 1 and 2). The skin had many raised, elevated, erythematous lesions — most of them round, some varying in shape but averaging about 2.0 cm. in diameter — some with marked iris configuration with a halo of red around the white central papule. The red lesions blanched on pressure. The greatest concentration of these lesions was on the soles of the feet and the palms of the hands (Figure 3). Lesions were also present on the extensor surfaces of the arms and legs. There was no evidence of scratching, none of the vesicles had erupted and there was no scaling. Routine hospital admission laboratory studies were not remarkable and no biopsy was performed.

Diagnosis and Treatment.—A diagnosis of erythema multiforme exudativum was made. The treatment consisted of bed rest. Recovery was uneventful. On discharge the skin lesions were fading and little balanitis was evident.

Case No. 2

History and Examination.—A 26-year-old airman presented on August 20, 1960 complaining of a sore mouth and tongue. His eyes were crusted in the morning and he had developed a rash on his hands the day previously which was followed by similar lesions on the toes of both feet. There was dysuria associated with soreness of the subpreputial mucous membrane (Figure 4).

For the past month he had had night sweats and some cough. There was no history of previous drug ingestion. He denied any previous history of a similar complaint but stated that during the war a gingival condition had been diagnosed as Vincent's gingivitis. He denied any recent contacts with any infectious agents.

On examination, the hands showed a vesicular rash with an erythematous border and the mouth was badly ulcerated. He had a generalized stomatitis with inflammatory redness, blisters and necrotic tissue well established. Apart from the skin and the numerous membrane lesions, little was found. Again, routine hospital admission laboratory studies including bacterial smears were not remarkable, and a biopsy was not done.

Diagnosis and Treatment.—A diagnosis of erythema multiforme was made. The initial treatment comprised chlortetracycline (Aureomycin) 250 mg. q.6.h., calcium bicarbonate mouthwash, and bacitracin ointment for the lesions. This was continued for five days. Treatment was then changed to oxytetracycline (Terramycin) 250 mg. q.6.h. and sodium bicarbonate mouthwash. Twenty units of ACTH (Duracton) were given for three more days and ten units for an additional two days. The patient was discharged on the tenth day, the mouth lesions healing well.

Discussion

In 1866 Hebra described a mild systemic disease of unknown ætiology, characterized by recurrent pleomorphic skin eruptions, which he called erythema multiforme exudativum. In 1922 Stevens and Johnson reported similar lesions but with more severe manifestations. Using as a main criteria for diagnosis, stomatitis, dermatitis, conjunctivitis and balanitis, Robinson and McCrumb[2] grouped the various conditions associated with this

disease under the terminology mucocutaneous-ocular syndrome. They maintained that the conditions are all variants of the same disease. Ashley has further tried to clarify nomenclature by classifying the more severe type of the disease as "major" and the less severe "minor." The more common or less severe form of this syndrome showing the cutaneous and oral lesions is referred to as erythema multiforme exudativum "minor," and the "major" classification is used when conjunctivitis and genital ulceration are present. Today a great many writers refer to this extension of the disease as the "Stevens-Johnson syndrome."

Two factors are commonly associated with the ætiology of this disease. They are drug sensitivity[3] and the herpex simplex virus.[4,5] The drugs most commonly implicated have been the sulphonamides, penicillin, salicylates, barbiturates, antipyrine and other antipyretics, phenolphthalein and the bromides.

The symptoms of the erythema multiforme minor or the Hebra type of the disease are restricted to flattened papules and large flat nodosities. Occasionally, vesicles and bullæ are present. While multiformity is the rule, one type of lesion usually predominates in each case. The eruption is nearly always symmetrical and is usually found on the legs and forearms and the dorsum of the hands and feet. The eruption which is generally recognized in well-defined patches, usually begins with pin-point to fingernail-sized macules of a dark bluish or purplish-red shade which in the course of some hours exhibit tumefaction in various degrees, producing papules and nodules.

These lesions are pleomorphic. Characteristically the central part of the lesion is pale, the periphery is darker. This gives a target effect. The lesions become dry, brownish red and discoloured, finally peeling as resolution occurs. In the severe cases the mucosal areas are affected by moist ulcerative lesions involving the whole oral cavity.

Cooke[6] found that erythema multiforme can affect the oral mucosa alone, but suggests that the attack may often be difficult to diagnose when erythema multiforme follows an herpetic infection of the lips.

When the mucous membranes of the lips, mouth, tongue and pharynx are involved, the lesions begin as vesicles or bullæ, and erosions of various dimensions follow. These may be partially covered with shreds of epithelium. At times much tenderness and swelling is present. Erythema multiforme exudativum of the major classification has a characteristic onset of a high fever, malaise and ulcerative lesions of the conjunctiva, mouth, genitalia and anus, followed in a day or two by the generalized bullous eruption common to erythema multiforme minor. This more widespread example of the disease is most commonly referred to as Stevens-Johnson syndrome.

Histologically, an intense subacute inflammation is seen in the papillary and reticular layers of the connective tissue. Blood vessels are dilated and crowded with leukocytes. Many polymorphonuclear leukocytes, lymphocytes and histiocytes, but few plasma cells, are seen in the fibrous tissue. The epithelium shows a marked increase in intercellular fluid and it is often possible to find areas where the prickle cells have been separated, the degree of separation indicating impending vesicle formation. Any sections of exposed connective tissue will be covered with a pyogenic membrane.

In the majority of cases the disease undergoes spontaneous resolution within a few weeks, subsequent attacks usually being more pronounced. Irrespective of the terminology used, a detailed search for the ætiological factors, upon which effective treatment can be based, is essential. Treatment consists of antibiotics used locally in preventing secondary infection. Prednisone and ACTH due to their anti-inflammatory and anti-allergic characteristics are of value in the mild, moderate and severe Hebra type cases. The corticosteroids have been used a great deal and shorten the attack as well as relieve the discomfort to the patient. The salicylates

are also used in the treatment of this group of diseases.

The prognosis is usually favourable. The over-all mortality rate in all types of erythema multiforme is about 18 per cent. It was much higher in malignancy (50 per cent) but has been greatly reduced by the administration of the corticosteroids, ACTH and the antibiotics. The eye lesions which can lead to permanent eye damage develop in the major form of the disease and are usually in the nature of a conjunctivitis.

The disease runs its course in a few days to several weeks, the average simple case lasting from two to three weeks. Recurrent attacks through a period of years are not uncommon and these are likely to appear in the spring and fall.

SUMMARY

A review of the subject and two case reports of erythema multiforme exudativum have been presented. One patient recovered without drug therapy, the other recovered following treatment with antibiotics and steroids. This disease is recurrent, affects various areas of the body and responds moderately well to modern therapy. It has been shown that the condition may be restricted to the oral cavity. Dentists should be aware of the early signs and symptoms of this disease.

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CAPO 5050 Montreal

Chronic fistula of the mandible

J. D. Newby, D.D.S. and W. J. Aitken, D.D.S.,

Prince George, British Columbia

A fistula of the skin of the face is generally a sign of a retained focus of infection which may be centered around a sequestrum or connected with an apex of a necrotic tooth. It may form spontaneously or may be the outcome of incision and drainage. Persistent fistulæ produce striking granulomatous lesions. They discharge a slight amount of pus, and if the inflammatory lesion undergoes an exacerbation there is some swelling and increased suppuration.

Treatment consists in removal of the focus. Local therapy alone is ineffectual.[1]

The present case report illustrates the consequence of inadequate early investigation and treatment of a case of chronic

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FIGURE 1 Profile of face showing indentation and fistula in right cheek.

fistula of the mandible. The case is of interest because of an apparent lack of appreciation of the odontogenic nature of this problem.

Case report

History and Examination.—The patient, a twenty-year-old white male was first seen by one of us on December 13, 1962. He complained of a draining fistula in the right cheek (Figure 1).

The patient recalled having had a toothache and a swelling on the right side of the face some three and a half years previously. At that time he did not consult anyone. In the summer of 1961 he had a huge swelling which broke and drained on the cheek. This time he consulted a physician who performed certain tests, advised him that he was allergic to something, prescribed tablets and recommended local application of heat. Apparently the discharge subsided temporarily thereafter. In June of last year he was hit on the face and a lump seemed to develop following this incident. He therefore consulted a physician on June 9, 1962 who made a diagnosis of a cyst and

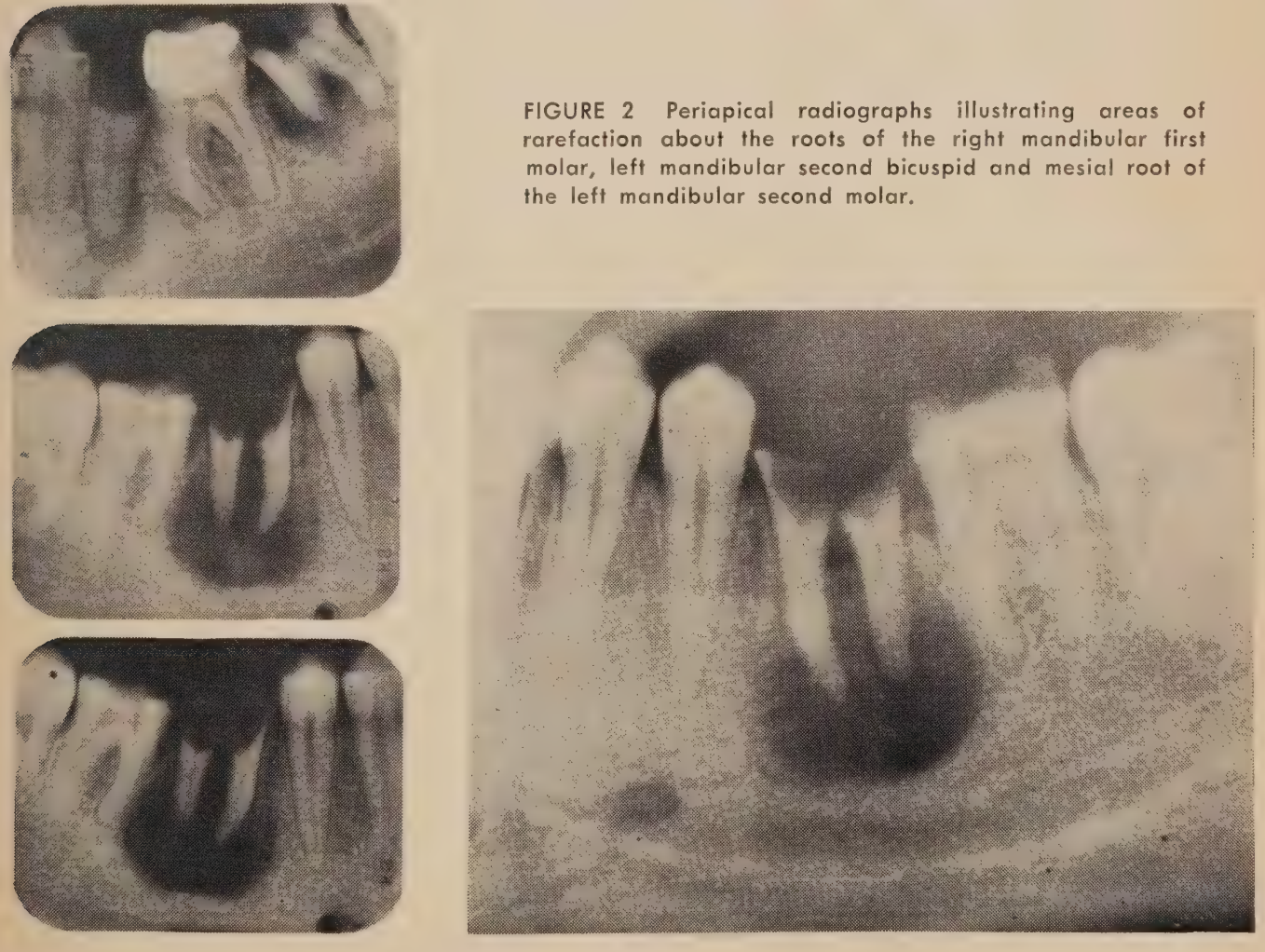

FIGURE 2 Periapical radiographs illustrating areas of rarefaction about the roots of the right mandibular first molar, left mandibular second bicuspid and mesial root of the left mandibular second molar.

prescribed a soluble sulphonamide (Gantrisin, Roche). Again the discharge subsided temporarily, but the same sequence — swelling, prescription of soluble sulphonamide and temporary arrest of the discharge — recurred on October 26, 1962.

Up to this time apparently neither physician had recommended consultation with a dentist. And apparently they had not associated the fistula with a possible dental source of infection.

On December 13, 1962 the patient sought help from us of his own volition.

By this time he had a deep indentation and scar on the right cheek with a draining fistula from which pus issued profusely upon palpation. The soft tissues were quite distended and the muco-buccal fold was almost non-existent in the area of the right mandibular first molar.

His teeth were in very poor condition with evidence of long-standing neglect. In the lower right quadrant only the roots of the first molar were present and the crown of the second molar had been partially destroyed. In the lower left quadrant there remained only the root of the second bicuspid and the crown of the second molar had also been extensively damaged.

Radiographic examination revealed a large area of rarefaction, at least one centimetre in diameter, surrounding the roots of the right mandibular first molar. There were also smaller areas of rarefaction in relation to the root of the left mandibular second bicuspid and the mesial root of the left mandibular second molar (Figure 2).

A diagnosis of multiple alveolar abscesses due to retained infected roots was made.

Operative Procedure and Postoperative Course.—The remnants of the right first and second molars were extracted under local anaesthesia on December 13, 1962 and the sockets were carefully curetted. On March 27, 1963 the offending teeth on the left side of the mandible were similarly extracted. The fistula had disappeared and healed by this time and the scar on the right cheek, although still noticeable, had become considerably smaller.

Discussion

Fistulæ of the skin of the face are frequently associated with dental infection. Some clinicians do not recognize that persistent fistulous tracts of the cheek, the chin, or angle of the jaw resist treatment because of a hidden ætiological factor which frequently is an abscessed tooth.

This report is presented in order to draw attention to the need for careful examination and proper diagnosis as an essential prerequisite to treatment of this condition. Prompt treatment results in early resolution and prevents the formation of a disfiguring scar.

Summary

A case of chronic fistula of the mandible is described. The patient was seen by two physicians on various occasions during a period of 18 months. Their treatment, consisting of local application of heat, chemotherapy, etc., secured only temporary remissions of the signs and symptoms. Two dentists finally identified the source of the infection as multiple alveolar abscesses due to retained infected roots. Resolution ensued when these roots were extracted.

The odontogenic nature of this problem and the desirability for dental consultation are stressed.

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427 Quebec Street

review article

Observation of children's teeth as a diagnostic aid: 2. Developmental difficulties reflected in enamel and pigment changes

W. M. Gibson, M.D., Vancouver and J. M. Conchie,† D.D.S., Langley, British Columbia*

On many occasions the dentist limits his concern of the patient to the teeth. The physician, on the other hand, all too frequently allows his gaze to bypass the teeth as he scrutinizes the pharynx. Dental health and overall bodily health are closely integrated and should never be regarded as separate and distinct fields for study. The clues which are visible in the mouth can be used in assessing developmental problems, as has been shown in Part 1 of this review. In addition, drug ingestion (tetracycline) or metabolic upsets (bilirubin) may lead to pigment changes in tooth enamel. Furthermore, faulty enamel formation seen in enamel hypoplasia may be related to pathological changes in the prenatal or perinatal period.

A description of the processes involved in the formation and calcification of teeth has been attempted in Part 1. Many disturbances which affect development during intra-uterine or perinatal life may be indelibly recorded upon the enamel of the teeth. This occurs through interference with the delicate process of amelogenesis (the laying down of enamel). At the present stage of knowledge the types or strength of the various forces necessary to influence amelogenesis and trigger enamel abnormalities are not all known. The inspection of children born prematurely[1] and those with multiple handicaps of developmental origin[2] reveals a higher incidence of enamel defects. One can estimate quite accurately the time when these disturbances occurred by a study of the nature and position of the markings on the crown of the tooth. The administration of certain compounds such as chloroquine, tetracycline, etc. results in their incorporation in the teeth and skeleton during the growing period. In some cases the staining of the dentine is visible through the enamel.

Enamel dysplasia

Enamel hypoplasia has been described as the occurrence of indentation or irregularities on the enamel surface. The defect may be so slight that it is apparent only after the tooth has been sectioned and subjected to microscopic examination, or it may be of such severity as to ring and disfigure the crown. The degree of malformation appears to be related to the severity and duration of the systemic

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*Assistant professor, Department of Paediatrics, University of British Columbia.

†Regional dental consultant, Fraser Valley Health Units, British Columbia Health Branch.

upset. For the purpose of this review the minor forms of enamel hypoplasia (pitted teeth) are not included.

Although hypoplasia may be observed in a variety of forms, its manifestations fall into two general categories:

1. Single Zones of Missing Enamel. — The defect may be narrow or wide. In each instance the surface itself may be pitted or smooth. A narrow band would be indicative of a disturbance of short duration. Chronic or more lengthy disturbance would give rise to broad bands of hypoplasia.

2. Multiple Zones of Missing Enamel.— Such cases would be the result of disturbances which were experienced on several occasions.

The types of defect which quickly attract our attention on examination are those with severe enamel defects and here there are frequently superimposed caries, marked attrition, or pigment changes.

Via and Churchill[2] have attempted to describe the precipitating factors, listing them under three general categories: localized mechanical trauma, hereditary factors and systemic disease. In this article we are largely concerned with systemic disease, with some mention being made of hereditary factors.

The incidence of hypoplasia in the normal population has been variously estimated from as low as 0.7 per cent[4] to as high as 10 per cent.[2] To our knowledge, a suitable study designed to assess the incidence of enamel hypoplasia in a normal population of 2 to 3-year-olds has not been undertaken. Enamel defects were observed in 119 of 219 children with cerebral disorders.[2] In this group such defects were found in nearly every athetoid and spastic child, and less regularly in those with hemiplegia or epilepsy.

Febrile illnesses, especially the exanthemata of childhood, have been commonly held responsible for the enamel defects in otherwise healthy children. Investigations which disprove this have been carefully carried out,[5] but the idea has remained in our culture. At times of rapid growth, or following severe illness when growth has been affected, transverse lines of increased density called growth lines appear at the metaphysis of the long bones. These forces may also affect the activity of the ameloblasts and produce a minor enamel defect. The defect is usually of such magnitude that it can be observed only on microscopic section. The permanence of the line of the tooth in comparison with the transient persistence of growth lines of the long bones is occasionally of importance in medico-legal or investigative studies.

The concept that the tooth records development in its intra-uterine and extra-uterine formation is supported by a number of investigators.[6,7,8] Calcification of deciduous teeth is known to commence in the second trimester of pregnancy.[9] The sequence is under strict genetic control. At the time of birth, calcification has progressed in the crowns of all deciduous teeth.

A pictorial means[2] of demonstrating the times at which hypoplasia may occur is shown in Figure 1. From this diagram the disturbance which occurred at nine months gestation might be reflected in the tips of the cuspids, the cuspal area of the molars and, although not shown, in the gingival third of the incisor. The notation of markings upon the middle third of the incisors would indicate that the disturbance was experienced at some time during 6 to 7 months of pregnancy. This chart is helpful in illustrating the possible timing of the insult, especially when the presence of enamel hypoplasia is a part of the picture of somatic "disturbance."

Some of the problems with which enamel dysplasia is associated are: prematurity, kernicterus, cerebral palsy, maternal rubella, vitamin deficiency, congenital allergy, and amelogenesis imperfecta.

Prematurity.—Because of the increased morbidity found in this population, a higher incidence of enamel hypoplasia would be anticipated. Stein,[6] in 1936 and again in 1947, has drawn attention to this, demonstrating hypoplasia in a group of 16 pre-

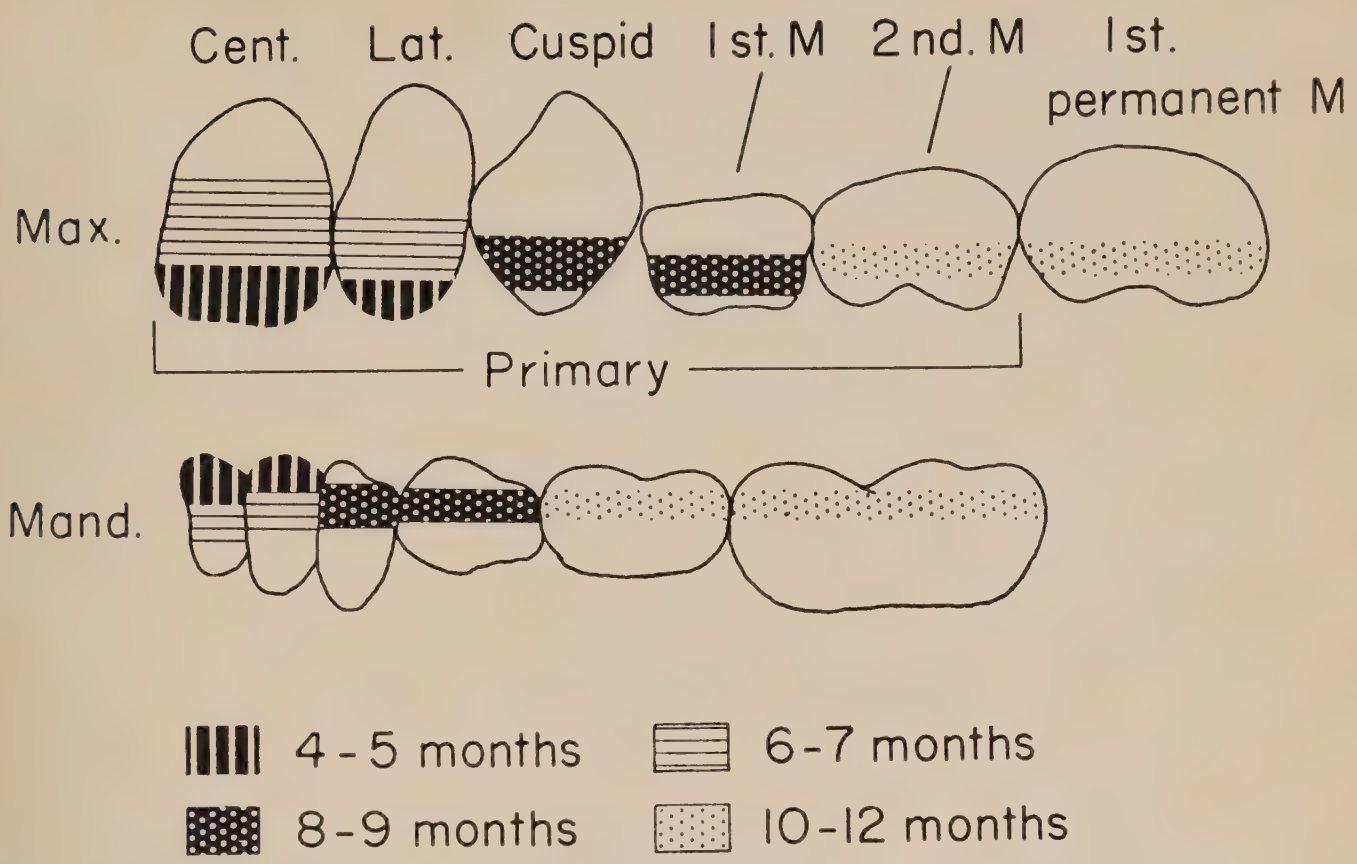

FIGURE 1 The time when hypoplasia occurred is indicated by position on the teeth. Time indicates months from onset of gestation. (Via and Churchill, J.A.D.A. 59:703, 1959.)

mature children. A more recent study noted enamel defects in five of a group of 21 premature infants who failed to survive.[1]

Figure 2 is a photograph of the dentition of a 2-year-old boy who came to medical attention for assessment of delayed development. He was found to have mild spastic quadriplegia and slight mental retardation. The child's history revealed that he was born after 27 weeks gestation and that for 15 days prior to the onset of labour intermittent uterine bleeding had caused considerable concern. The level of the dental flaw, timed in this case to the onset of the disturbance, is dramatically demonstrated and gives us a lead to further ætiological factors.

One of a number of long-term studies of neurological development of premature babies is currently being undertaken at the University of British Columbia.[10] The aim is to detect at an earlier age those children with cerebral palsy and mental retardation. The study group was questioned on the occurrence of enamel problems. As a result of this heightened interest the assessment team is documenting larger numbers of children with enamel defects. Because of knowledge of anomalies of the teeth, we anticipate that all children born prematurely will be assessed for enamel hypoplasia at two to four years. The position of the enamel defect on the deciduous teeth may provide another clue that monitors the time of onset of the problem which subsequently leads to premature expulsion of a child from the womb.

Kernicterus.—This term is used to describe cerebral changes that follow severe neonatal jaundice, usually triggered by erythroblastosis foetalis. The children frequently manifest severe signs of neuromotor disorder, with opisthotonos and marked athetosis. Examination of the deciduous teeth in these children reveals a

FIGURE 2 The level of the hypoplasia indicates insult at the seventh month in utero.

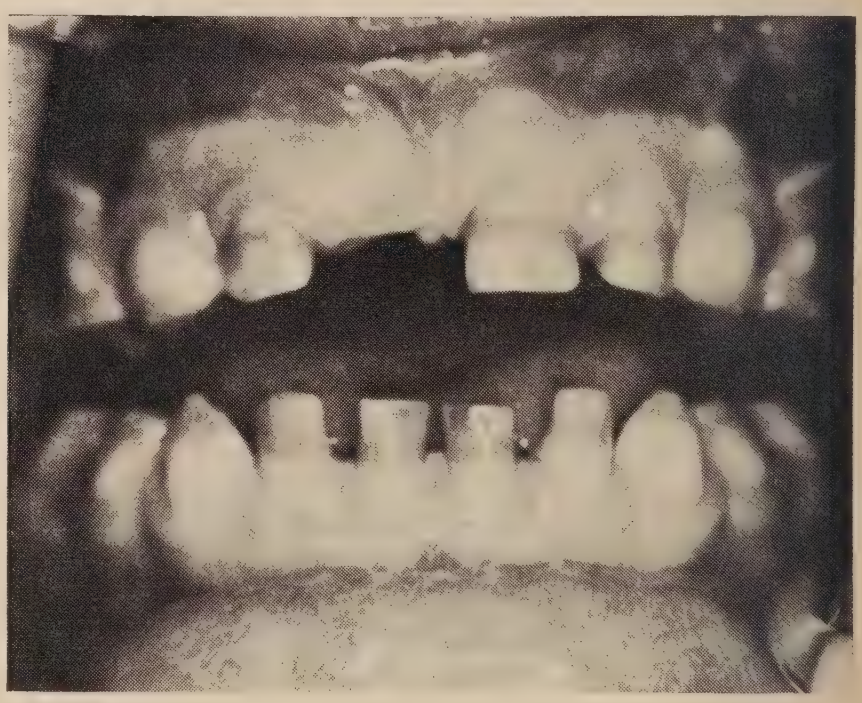

FIGURE 3 Tetracycline staining of the deciduous teeth of a child born prematurely and given a short course of the drug while in the nursery.

high occurrence of enamel hypoplasia.[11] As might be expected in a problem where the difficulty occurs shortly following birth, the teeth show defects at the level of the enamel being laid down at this time (a ring or notch lesion at the same area of the dentine-enamel junction as the neonatal line). Involvement of the gingival third of the affected central incisors, a notch lesion of the tips of the cuspids and the cusps of the molars describes the picture found in a full-term infant where enamel hypoplasia is associated with kernicterus.

Prematurity, if associated with kernicterus, will influence the position at which the enamel defect occurs. The hypoplasia will be found more on the incisal third

of the central incisors; the cuspids may be affected at the tip or unaffected as are the molars.

Cerebral Palsy.—Children with neuromotor disorders, including spasticity or dyskinesia, are encompassed by the term "cerebral palsy." Concurrent with the reduction in mortality of premature infants there is a rising frequency of children with cerebral palsy, in which prematurity plays an ætiological role. Although the causative factors of cerebral palsy are difficult to determine, the physician's and dentist's awareness of dental enamel dysplasia provides the first accurate physical clue to the timing of the insult.

The articles published on dental management of cerebral palsied children[12,13] have been concerned for the most part with the high incidence of caries, and the methods of carrying out operative procedures which may or may not require general anaesthesia. Methods of appraisal present to both paediatrician and paedodontist a challenge to obtain more ætiological and hence preventive data. It is to be hoped that in cerebral palsy programs co-operative studies will be established to embrace this type of research.

Immediately after eruption those teeth with marked enamel defects may show cusps that are but spikes of dentine with little enamel. Rapid attrition can quickly obscure this appearance and the value of the tooth in pinpointing the time of insult may be lost. Athetoid children may quickly flatten the cusps of all deciduous teeth through a constant pattern of tooth grinding.

At the level of the enamel defect, whether through exposure of the dentine of from other causes, a dark stain may soon occur after eruption. The appearance may be unpleasant and the parents may mistake this hypoplasia for caries and press for removal of these teeth. Dark stain on the gingival margin of the central incisors which cannot be removed by dental prophylaxis has sometimes been interpreted as caries. Such a stain may in fact be a monitor of a perinatal problem the child has experienced (Figure 3). Premature destruction of the teeth by caries associated with surface defects is often seen. The extraction of large numbers of these deciduous teeth poses an additional handicap to the child with cerebral palsy.

Children seen for assessment of cerebral palsy should have attention paid to the dentition. Significant numbers of children will have enamel dysplasia.[2] Inclusion of dental treatment as part of the management program will prevent discomfort for the child and frustration of the parents.

Maternal Rubella.—The potential of the teratogenic effect to the child arising from maternal rubella acquired in the first trimester of pregnancy has been widely reviewed. In the epidemic occurrence reported from Australia[14] delayed eruption time and enamel hypoplasia were found. A controlled survey (1962) of a large series of such cases in Sweden[15] failed to demonstrate a greater prevalence of enamel hypoplasia.

Vitamin Deficiency. — Abnormalities of bone and teeth may occur as the result of certain nutritional deficiencies. Cells of comparable origin in bones and teeth react in a similar manner during development when faced with nutritional lack.[16] They also deposit compounds (e.g. lead, chloroquine, tetracycline, etc.) in an analogous manner, despite the different functions of the structures. Severe vitamin A deficiency in animals is shown to result in irregular dentine formation. This vitamin continues to receive attention since Warkany[17] demonstrated prenatal deprivation in rats to be teratogenic. This finding spurred valuable research in the role of intra-uterine environment as a causative factor in disability states. Severe lack of ascorbic acid or vitamin C may result in dentine that is resorbed or porotic.[16] Vitamin C deficiency affects the structures supporting the tooth and may lead to loss of collagen fibres or may progress to destruction of alveolar bone.[14]

Enamel hypoplasia in man was at-

tributed to vitamin D deficiency in the writings of earlier investigators. As the result of our present knowledge of enamel growth, this concept has been largely discarded. Young rats on a rachitogenic diet show that a small line of disturbed calcification on the dentine may appear.[16]

Shaw[16] reports that deficiencies of other vitamins and minerals produce no characteristic dental changes. The current knowledge of the public in regard to appropriate maternal diet, with consideration of vitamin and mineral requirements, has made enamel hypoplasia due to dietary deficiency unusual.

Congenital Allergy. — An interesting report on the appearance of enamel hypoplasia in 26 of 45 children with congenital allergy has been published.[18] The site of the enamel defect correlates with the time of onset of the severe allergic reactions.

Amelogenesis Imperfecta.—This term describes a rare hereditary form of faulty enamel formation in specific areas of teeth and in only certain teeth. The teeth are stained a brown colour and may be pitted or hypoplastic. This may be confused with other types of enamel hypoplasia. Family history reveals this as an autosomal dominant trait.[19] Ectodermal dysplasia is another hereditary disease in which a characteristic finding may be enamel hypoplasia and missing teeth.

Discoloration of teeth

Many of the pigment changes observed by both physicians and dentists are due to problems of dental hygiene rather than incorporation of pigment into the tooth structure. The normal colour of tooth enamel varies between chalky white to pale yellow. Three types of pathological tooth pigmentation, however, are discussed: tetracycline staining, bilirubin staining, and dentinogenesis imperfecta.

Tetracycline Staining.—This antibiotic was introduced in 1950 and, because of the low occurrence of side-effects, its use in respiratory illness of children became widespread in four to five years. Two particular areas for long-term use have been: (1) the attempt to reduce infections in nurseries for premature babies, and (2) as a prophylactic drug for the prevention of respiratory illness in children with cystic fibrosis.

The knowledge that tetracycline was incorporated into growing bones was recorded in 1957.[21] Studies with young rats in 1961 demonstrated that it was also incorporated into the teeth.[21] The first publication incriminating tetracycline as a cause of pigmentation in human deciduous teeth was made by Wallman and Hilton[21] in Australia. Yellow pigmentation of the teeth had been observed in many children who had no history of neonatal jaundice. These children were examined at follow-up clinics of a large maternity hospital. This led to a retrospective study of 64 children who had received tetracycline during the first week of life, prophylactically in 23 cases and in 10 cases for respiratory distress. Evidence of yellow to brownish pigment was found in the teeth of 50 of the 64 children studied. As would be expected, the severe tooth pigmentation occurred most frequently in the premature babies and those given the highest total dose per kilogram of birth weight.

Tetracycline antibiotics (tetracycline, chlortetracycline, oxytetracycline) may be deposited in the calcified structures of the body if given at a time when ostenogenesis or amelogenesis is taking place. At higher levels of dosage a marked inhibition of skeletal growth also occurs.[20] The degree of inhibition depends to a large extent upon the dosage, duration of administration and rate of mineralization of the particular structure. The reduced mineral density that has been shown to occur may make the teeth more prone to dental decay and may also be a cause of enamel hypoplasia.[22]

The position of the discoloration corresponds to that part of the tooth which was undergoing calcification at the time of medication. In premature babies the pigment will be seen most prominently over

the coronal portion of the incisors. In full-term babies it is found generally in the gingival areas of the incisors and in a broader position on the cuspids and molars. The bright yellow colour in the deciduous teeth tends to change to a brownish-yellow and progresses with ageing to a blue-black opalescent colour. Tetracycline was distinguished from other compounds through the finding of its yellow-gold fluorescence in ultraviolet light. By examining a section of the tooth in a fluorescent lamp with appropriate filters, an ultraviolet spectrum of the same wave-length was found for both tetracycline hydrochloride and the pigmented tooth.[21] Clinical testing of a child's teeth to verify the presence of tetracycline staining is a simple procedure requiring only a Wood's lamp and a darkened room.

The possibility of intra-uterine transmission of tetracycline to the offspring was explored by Douglas.[23] Pigmentation of the fingernails, seen as a brownish-yellow discoloration, had been shown in a number of patients with chronic chest problems who had been receiving tetracycline for a period of several years. The proximal part of the nail was found to fluoresce under an ultraviolet lamp. Eight children were born to mothers in this group and all showed brownish-yellow discoloration of the deciduous teeth. The brilliant fluorescence of the teeth demonstrated that tetracycline had been deposited. These children were not breast-fed, and the investigator therefore assumed that the tetracycline was absorbed from the placenta. In pregnant rats, the administration of 25 mg. per Kg. of tetracycline every six hours ("normal" dose 7 mg. per Kg. every six hours) resulted in interference with the rate of growth of developing bones in the foetus.[24] The authors contend that administration of tetracycline may interfere with growth in premature infants as seen in measurements of bony length.

A number of recent publications[21,22] have increased clinical awareness of tetracycline pigmentation and brought to light numerous cases of this condition. Schwachmann et al[25] in 1958-59 described brownish-yellow teeth in 40 of 50 children with cystic fibrosis of the pancreas under long-term treatment with tetracycline.

The stain of the drug in the deciduous teeth remains until their normal exfoliation. The anterior permanent teeth are becoming calcified from six months of age to six years. At any time during this period, if the drug is given for a prolonged period or in high dosage, the possibility of discoloration of the permanent incisors must be considered. Treatment with tetracycline during the first two years of life in three patients with cystic fibrosis has produced a bright yellow colour of the permanent incisors.[24] Parents will question the physician about the disfigurement, increased dental problems and the possibility of discoloration of the permanent teeth. Because of the early calcification of permanent teeth, the physician should carefully check into dosages and duration of treatment before assuring a mother that the permanent teeth will be unaffected. The premature baby with deciduous tetracycline-stained teeth is also likely to be the sickly child who, during the first few years of life, may have received tetracycline for many intercurrent illnesses.

The graphic clarity of tetracycline staining in the neonatal period is seen in Figure 3. This child, born at 35 weeks gestation, received tetracycline drops, 12.5 mg. per Kg. every six hours from the third to the fifteenth day of life. The sharp line of demarcation divides the stained from the unstained portion which represents the part of the crown formed after the cessation of medication.

Bilirubin Staining.—When the serum bilirubin in the neonatal period of the full-term infant, or more frequently in the premature child, reaches high levels, the later eruption of typical green teeth should be kept in mind.[11] The pigment is located in a band in the dentine at the level of neonatal development. The pigment, deposited in the tooth, has been shown to be biliverdin. No correlation has

been found between the intensity of pigmentation with either duration or the severity of the jaundice. The relationship between green teeth and kernicterus does occur, but many children after haemolytic disease show green teeth and have normal or only slightly abnormal neuromotor findings. Figure 4 demonstrates the dentition of a child born prematurely having an elevated bilirubin in the postnatal period. Enamel dysplasia, bilirubin staining, caries, attrition and incorporation of black pigment are noted.

Dentinogenesis Imperfecta. — Teeth may occasionally be seen that have a uniform opalescent grey to bluish-brown colour. This condition is called "dentinogenesis imperfecta." The enamel lacks pigmentation but may be of normal thickness. Frequently rapid attrition occurs, exposing the dentine to extraneous pigments of food which results in dark brown or even black staining. This condition is inherited as a simple autosomal heterozygous dominant trait with good penetrance.[16] It affects both primary and secondary teeth and in a school population was observed in 1 child in every 8,000.[16] Other inheritable conditions, such as porphyria, may reveal pigment changes resulting in dark brown or reddish teeth.

Conclusion

Concern over the problems of prematurity, cerebral palsy, and certain other long-term illnesses has sparked a rapidly awakening interest in the diagnostic clues that observation of the teeth can provide. Dentists, physicians, and para-medical personnel should be able to utilize the position of an enamel defect to deduce the time of disturbance of amelogenesis. The prenatal and perinatal factors that lead to the disability and are reflected in the enamel can be investigated. Thus, another door is opened for research of ætiological factors.

Pigment changes are also developmentally timed and, through staining by bilirubin or a drug such as tetracycline, leave an indelible sign in the dentition. Physicians and dentists, concerned with these side effects of tetracycline antibiotics, will likely consider alternate medications for expectant mothers, premature infants, and children at an age when calcification of teeth is actively proceeding.

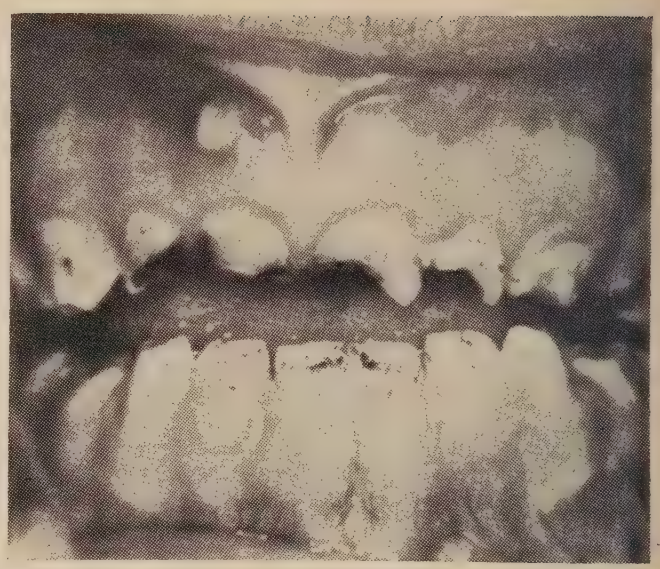

FIGURE 4 Dentition of a child born prematurely and affected by bilirubin staining.

Résumé

On se préoccupe davantage des problèmes que soulèvent chez les enfants la paralysie cérébrale et d'autres maladies chroniques de longue durée et on se sert de plus en plus des dents pour y trouver des traces de ces maladies.

Les dentistes, les médecins et les membres du personnel auxiliaire devraient être en mesure de fixer l'époque de l'amélogénèse, en notant la région où l'émail s'est détérioré. On peut s'interroger sur les facteurs qui, avant ou à la naissance, ont pu influencer ces perturbations qui se manifestent dans l'émail. C'est un autre moyen dont on dispose pour rechercher les facteurs étiologiques.

La pigmentation des dents s'établit aussi à certaines époques du développement des dents: la bilirubine et des médicaments, tels que la tétracycline, laissent

des traces indélébiles dans les dents. Les médecins et les dentistes qui se préoccupent des effets secondaires de la tétracycline songeront à d'autres antibiotiques, quand il s'agit de femmes enceintes, d'enfants prématurés ou d'enfants qui sont à un âge où la calcification des dents est très active.

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715 West 12th Avenue

abstracts

DISINFECTION OF DENTAL INSTRUMENTS

H. A. Hunter and E. M. Madlener. Internat. D. J. 11:312, 1961.

The known techniques of sterilization employ boiling, steam autoclaving, moderate dry heat, flaming, gassing, chemical solutions or irradiation.

The chief problem with steel instruments is corrosion.

Notwithstanding this problem, autoclaving, using moist heat in the form of saturated steam under pressure, is the most dependable medium for the destruction of all forms of microbial life. A safe practical minimum time allowing for packing, wrapping and position of the load in the autoclave is 30 minutes at 120°C.

A second choice of sterilizing metal instruments is to employ dry hot air. A time-temperature ratio of six hours at 121° C. is analagous to using a steam autoclave as a dry heat sterilizer where the steam is in the jacket only.

The available chemical disinfectants include phenolic compounds (active against vegetative forms of bacteria and fungi), mercurial compounds (poor disinfectants), chlorine compounds (all except hexachlorophene are corrosive for metal), alcohols (coagulate proteins), quaternary ammonium compounds (extensively used as sanitizers for eating utensils), and formaldehyde preparations (actively germicidal and sporicidal, but have irritating fumes and coagulate protein).

Quick sterilization of endodontic instruments is achieved with thermostatically controlled dry heat sterilizers, using molten solder, glass beads, salt, sand, or steel ballbearings. This technique is limited to small objects that can be submerged in the hot medium. It is important that none of the medium adhere to the instrument being sterilized. Otherwise there is a risk of introducing it into the root canal. The equipment is simple, small, speedy in use and inexpensive.

Handpieces and contra-angles may be sterilized by boiling in oil or by dry heat treatment. At 150° C. hydrocarbon oils tend to break down, give off an objectionable smell and present a potential fire hazard. On the other hand silicone oils, while they are stable and neither smell nor are a fire risk, are poor lubricants. But full sterility is unnecessary for routine purposes where there is no penetration of the submucous tissues. Immersion for 20 minutes in heavy mineral oil at 107° C. is sufficient to kill vegetative forms of bacteria both on the surface and on the internal parts of contra-angles contaminated with saliva. Because of the lack of the moisture factor in treating oily or greasy contra-angles considerably more time is required for dry heat sterilization.

Air turbine handpieces contain plastic sleeves. Therefore they cannot be heated to 100° C. Neither can they be totally immersed in a liquid because of the difficulty in getting all the liquid out again. Reliance must be placed on sanitization — in this case mechanical cleansing of the external surface combined with a chemical disinfectant.

Because they penetrate deeply into the tissues, hypodermic needles present a special risk of infection. Besides the bacterial diseases there is the danger of transmitting the virus of infectious and serum hepatitis. Each needle and its hub must be individually cleaned with a metal stylet. The stylet must be removed before sterilizing to prevent electrolytic pitting of the metal needle. Only autoclaving ensures sterility. Oil sterilization is unwise because of the possibility of oil embolism. Though effective against vegetative forms of bacteria, the effect of boiling water on serum hepatitis virus is unknown. The addition of alkalis may destroy spores but the residual alkali may react with the drug to be injected later.

Dental Economics News Letter • News of the latest developments in dental and health economics in Canada and abroad appears in the *Dental Economics News Letter* published by the Bureau of Economic Research of the Canadian Dental Association. The News Letter also contains direct quotations from articles appearing in newspapers and magazines These portray the thinking in this field outside the profession. Association members who wish to receive the News Letter should make application to the Secretary, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

editorials

Consultation between physicians and dentists

The case report by Doctors Newby and Aitken, which appears in this issue, illustrates a matter of importance—collaboration between physicians and dentists in the treatment of patients afflicted with ailments that have joint medical and dental concern.

Medical practice acts generally entitle physicians to treat all illnesses of the human body without restriction. Dental practice acts authorize dentists to treat ailments of the oral tissues and related structures. In and around the mouth there is thus an area of mutual interest to physicians and dentists where both are entitled to render care. Ailments encountered in this region have a medical as well as dental connotation. Just who provides the appropriate treatment depends on the patient's initial choice of practitioner and subsequently on that practitioner's judgement of his personal competence to render treatment. It is with respect to the latter that difficulties sometimes arise.

Notwithstanding the practising rights of either profession, any practitioner, be he dentist or physician, who entertains the slightest doubt about his personal competence in a given situation owes his patient the duty of consultation with someone possessing the necessary competence. The patient's interest comes first; professional practice prerogatives are of secondary importance.

No dentist should ever hesitate to consult a physician for competent advice when the situation so demands. Of course, the manner in which consultation or patient referral are sought is no less important than the intent of the act. The British Dental Association's statement, "Guidance for professional conduct,"[1] provides the following ethical procedure for this purpose:

1. When a dentist considers it necessary to obtain a medical opinion concerning a patient he should advise the patient to consult his usual physician, and, with the patient's consent, should furnish that physician with any relevant information about the patient.

2. If the dentist desires a further medical opinion, he should inform the patient's physician before making any arrangement for obtaining a second opinion.

3. If the patient has no family physician, the dentist should advise the patient to select a physician for the purpose of consultation and should inform the patient that, subject to the patient's consent, he will be pleased to communicate with the physician selected on receiving from the latter a request for information.

4. If the patient has no family physician and specifically requests the dentist to recommend one, the dentist may do so.

5. The physician consulted should communicate his opinions to the dentist.

The foregoing procedure reflects a proper integration of professional skills to serve the interest of the patient's total health — an interest that must ultimate-

ly justify whatever action is taken.

Fish,[1] in a foreword to a recently published text on legal and ethical aspects of dental practice, describes our obligations in these words: ". . . As a profession grows in health awareness and public recognition, so of itself it evolves rules of conduct for its members. By the ethical content of such rules and by the extent to which they are observed the profession will ultimately come to be judged. It is therefore of great concern that these rules be consciously studied and applied by all who practise upon the public."

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Information on fluoride supplementation up-dated

An article by Doctors Nikiforuk and Fraser on fluoride supplementation, which appears in this issue, provides the latest information on the relative merits and mode of administration of home-fluoridated water, fluoride concentrates (tablets, solutions) and food additives (in salt or milk) for caries prophylaxis.

The authors are in complete agreement with the Council on Research that none of these methods competes with communal water fluoridation in terms of safety, effectiveness and cost.[1] But approximately one-third of the population in Canada does not have access to a communal water supply. It is important that the benefits of fluoride ingestion be made available to these people in other ways. Fluoride supplementation offers this possibility.

Each method—except home-fluoridated water used for all drinking purposes, preparation of juices and formulae, and for cooking — departs significantly from the ingestion of communally fluoridated water. Fluoride supplementation, if properly used, will reduce the incidence of dental caries in children, but in the present state of our knowledge it is impossible to predict the degree of protection thus conferred.

The authors' dosage schedules for home fluoridated water, tablets and solutions are based on the most up-to-date knowledge of human fluid consumption at various age levels. They also take account of the fluoride content of the existing water supply. This makes for greater precision when prescribing the appropriate supplement for a given patient.

Like the Council on Research, Doctors Nikiforuk and Fraser express reservations over the use of multiple vitamin-fluoride preparations. Fixed formulation of these combined preparations does not permit modulation of the individual components according to age, fluoride already present in drinking water, or the vitamin requirement of the patient. Furthermore, misuse of such preparations may not be readily apparent because some time must elapse before deleterious effects of excessive or insufficient intake of the constituents become manifest.

The evidence presented suggests a useful secondary role for fluoride supplementation in caries prophylaxis. But lest anyone be tempted to advocate indiscriminate use of this technique, we reiterate the warning of the Council on Research that these preparations "be provided only on prescription by a qualified dental or medical practitioner, only after the fluoride content of the home water supply has been ascertained, and only where continuous parental supervision can be assured over a period of many years."[1]

REFERENCE

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Bureau of Economic Research

Average income of Canadian dentists, 1961

Bureau des recherches économiques

Moyenne des revenus des dentistes canadiens, 1961

There was practically no change in the average income of dentists between 1960 and 1961. Dentists are still the fourth highest income earners.

This and other information on income is contained in the latest edition of *Taxation Statistics* prepared by the Department of National Revenue. A total of 4,865 dentists had taxable incomes in 1961. Of these, 542 were 65 years of age and over. The average income of all taxpaying dentists was $12,337; 23 per cent earned between $10,000 and $15,000, 18 per cent between $15,000 and $20,000 and 13 per cent over $20,000.

The average income of dentists from professional sources was $11,481. This is slightly less than the average amount earned from professional sources in 1960. Wages and salaries averaged $247 per dentist, bank and bond interest $236 and dividends $160. The average amount of tax paid was $2,381 or 19 per cent of the dentist's net income before taxes.

An additional 160 dentists made too little income to be taxed. Their average income during 1961 was $2,400. Eighty of these dentists were 65 or more years old.

The number of persons listed in professions such as dentistry is consistently less than those shown by professional

Il n'y eut pratiquement pas de changements dans la moyenne des revenus des dentistes au cours des années 1960 et 1961. Les dentistes, au point de vue revenus, se classent encore au quatrième rang chez les contribuables.

Ces renseignements au sujet des revenus paraissent dans la livraison la plus récente de *Statistique fiscale* publiée par le Ministère du revenu national. 4,865 dentistes avaient des revenus imposables en 1961. De ce nombre, 542 avaient 65 ans et plus.

La moyenne des revenus de tous les dentistes payant de l'impôt s'est chiffrée à $12,337; 23 pour cent ont gagné entre $10,000 et $15,000; 18 pour cent, entre $15,000 et $20,000 et 13 pour cent, plus de $20,000.

La moyenne des revenus provenant de l'exercice professionnel fut $11,481. Ce chiffre, sous ce rapport, est légèrement inférieur à celui de 1960. La moyenne des salaires, par dentiste, s'est établie à $247; les intérêts d'obligations et de banque, à $236; et les dividendes, à $160. La moyenne de l'impôt payé s'est chiffrée à $2,381 ou à 19 pour cent des revenus nets avant la déduction d'impôt.

De plus, 160 dentistes ont eu des revenus trop faibles pour qu'ils soient

TABLE 1 Average income before and after taxes and average tax of Canadian taxpayers, by occupation, 1961 • Revenu moyen avant et après déduction de l'impôt et impôt moyen des contribuables canadiens classés selon leur occupation, 1961.

Occupation	Average income Revenu moyen		Average tax	Average tax as percentage of average income
	Before taxes Avant déduction de l'impôt	After taxes Après déduction de l'impôt	Impôt moyen	Impôt moyen en pourcentage du revenu moyen
Physicians and surgeons médecins et chirurgiens	$17,006	$13,109	$3,897	22.9
Lawyers and notaries avocats et notaires	15,718	11,895	3,823	24.3
Engineers and architects ingénieurs et architectes	14,692	11,305	3,387	23.1
Dentists dentistes	12,337	9,953	2,384	19.3
Accountants comptables	11,627	9,363	2,264	19.5
Other professionals autres prof. libérales	5,454	4,718	736	13.5
All others tous les autres	4,265	3,864	401	9.4
Total	4,348	3,924	424	9.8

TABLE 2 Percentage distribution of dentists and of all taxpayers, by income class, 1961 • Comparaison en pourcentage des revenus des dentistes avec ceux de tous les autres contribuables, par catégories de revenu, 1961.

Income class Catégories de revenu	Per cent — Pourcentage		Cumulative % Cumulatif	
	Dentists Dentistes	All taxpayers Tous les contribuables	Dentists Dentistes	All taxpayers Tous les contribuables
under - moins de $2,000	0.8	14.2	0.8	14.2
$2,000 - 3,000	3.3	19.4	4.1	33.6
$3,000 - 4,000	3.2	21.7	7.3	55.3
$4,000 - 5,000	4.2	18.6	11.5	73.9
$5,000 - 6,000	5.0	10.9	16.5	84.8
$6,000 - 7,000	7.5	5.7	24.0	90.5
$7,000 - 8,000	7.5	3.0	31.5	93.5
$8,000 - 9,000	7.9	1.8	39.4	95.3
$9,000 -10,000	6.7	1.1	46.1	96.4
$10,000-15,000	23.3	2.2	69.4	98.6
$15,000-20,000	17.7	.6	87.1	99.2
$20,000-25,000	7.8	.3	94.9	99.5
$25,000 and over — et plus	5.1	.5	100.0	100.0

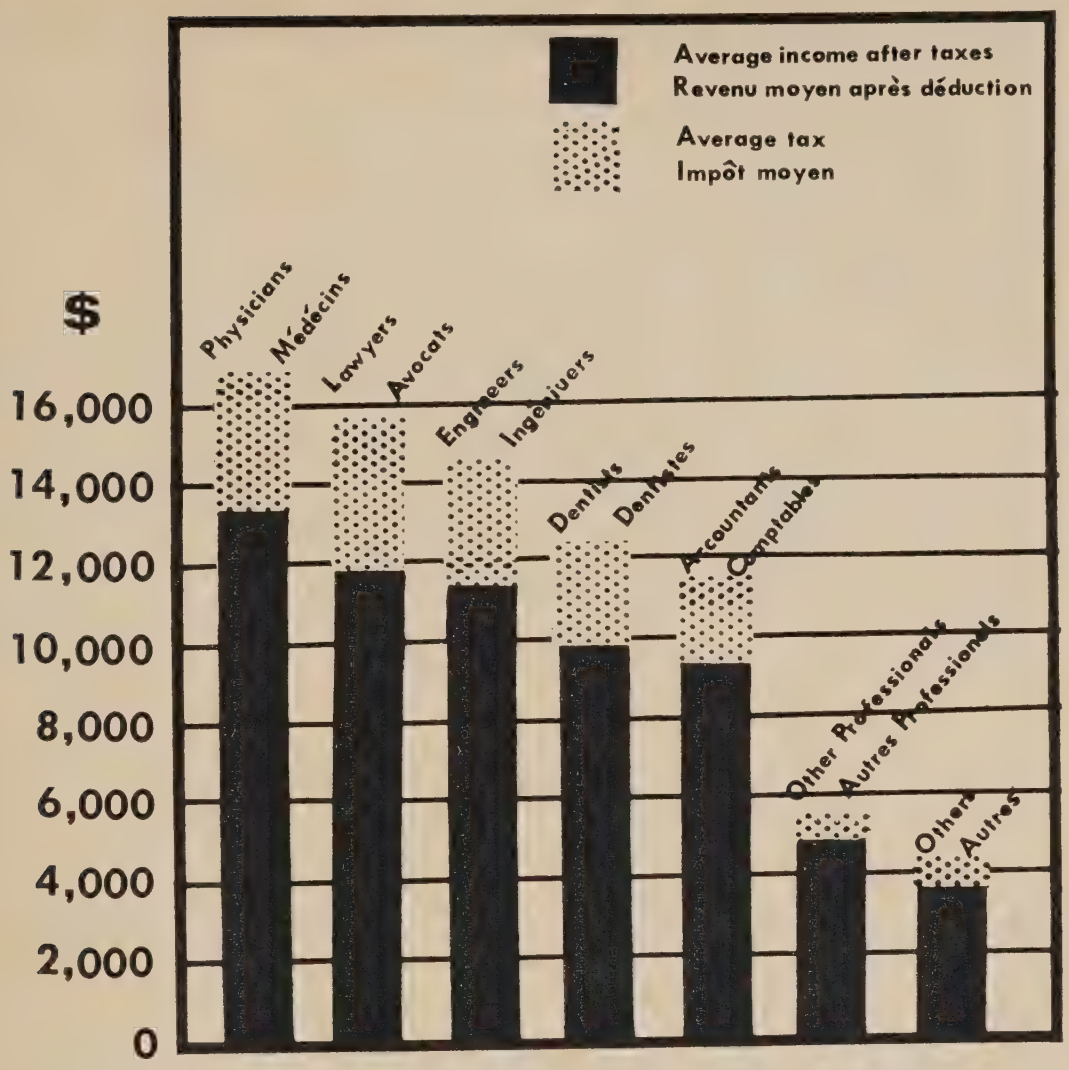


FIGURE 1 Average income of Canadian taxpayers, 1961 • Revenu moyen des contribuables canadiens, 1961.

TABLE 3 Average income of dentists in 1961, by province, arranged in order of income • Revenu moyen des dentistes, 1961, par province, par ordre de revenu moyen.

Province	Average income Revenu moyen	Province
Newfoundland	$16,667	Terre-Neuve
Saskatchewan	15,902	Saskatchewan
British Columbia	14,597	Colombie britannique
Alberta	14,527	Alberta
Ontario	13,174	Ontario
Nova Scotia	12,838	Nouvelle Écosse
New Brunswick	11,052	Nouveau-Brunswick
Manitoba	10,683	Manitoba
Prince Edward Island	10,600	Ile-du-Prince-Edouard
Quebec	8,257	Québec

TABLE 4 Per cent increase in incomes and taxpayers, by occupation, 1951-1961 • Augmentation en pourcentage des revenus et des contribuables, selon leur occupation, 1951-1961.

Occupation	Per cent increase Pourcentage d'augmentation	
	Average income Revenu moyen	Taxpayers Contribuables
Physicians and surgeons médecins et chirurgiens	70%	66%
Lawyers and notaries avocats et notaires	54	43
Engineers and architects ingénieurs et architectes	53	23
Dentists dentistes	96	28
Accountants comptables	42	138
Total	38	62

directories. "This is because the taxation statistics covering these professional groups include only those whose chief source of income is from the practice of their professions." A dentist whose chief source of income is from salary is classified as an employee.

The year to year variations in the average incomes of dentists by province are often rather erratic. This may be because statistics on individual tax returns are based on a sample. All returns are tabulated only for those returns over certain size limits. In small groups, therefore, considerable distortion may result.

Practice Survey Begins March 15 • Dentists from coast to coast will receive questionnaires in March asking for current information on the conduct of dental practice. This survey, the third undertaken by the Bureau of Economic Research of the Canadian Dental Association at five-year intervals, provides dentists and health authorities with factual data on conditions of dental practice throughout Canada. All dentists are urged to co-operate by completing and returning questionnaires promptly.

imposables. Leur moyenne de revenus s'est établie, en 1961, à $2,400. 80 pour cent de ces dentistes avaient 65 ans et plus.

Le nombre des personnes classifiées comme faisant partie d'une profession — telle que la chirurgie dentaire — est inférieur à celui apparaissant dans les bottins professionnels. "C'est parce que la statistique fiscale de ces groupes professionnels comprend seulement les personnes dont la principale source de revenu est l'exercice de leur profession." Un dentiste dont la principale source de revenus lui vient d'un salaire est classifié comme un employé.

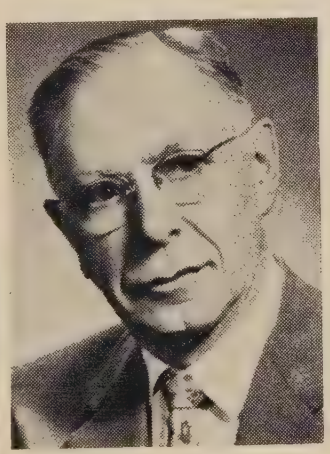
Les variations qui se produisent d'année en année dans la moyenne des revenus des dentistes, par province, sont sujettes à beaucoup d'erreurs. La cause de ces erreurs peut se trouver dans le fait que les statistiques au sujet des rapports d'impôt sont établies sur des échantillonnages. Ces rapports sont compilés en tenant compte seulement de ceux qui dépassent certaines limites. C'est pourquoi, il peut facilement se glisser des erreurs dans de petits groupes.

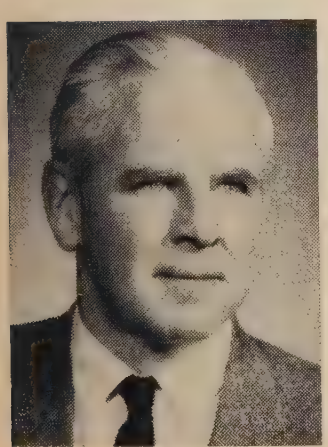
Maligne Lake, Jasper National Park, Alberta

Alberta association to host national convention in June

Edmonton, western Canada's gateway to the north and oil capital of sunny Alberta, will be the venue for this year's national convention of the Canadian Dental Association, June 28-July 1. The Alberta Dental Association, which holds its annual convention concurrently with the national event, is the host organization. Plans for scientific, social and other events are almost complete, according to Canadian Dental Association president James Zimmerman and W. R. Stuart, convention committee chairman. Edmonton's Macdonald Hotel will serve as convention centre.

James Zimmerman





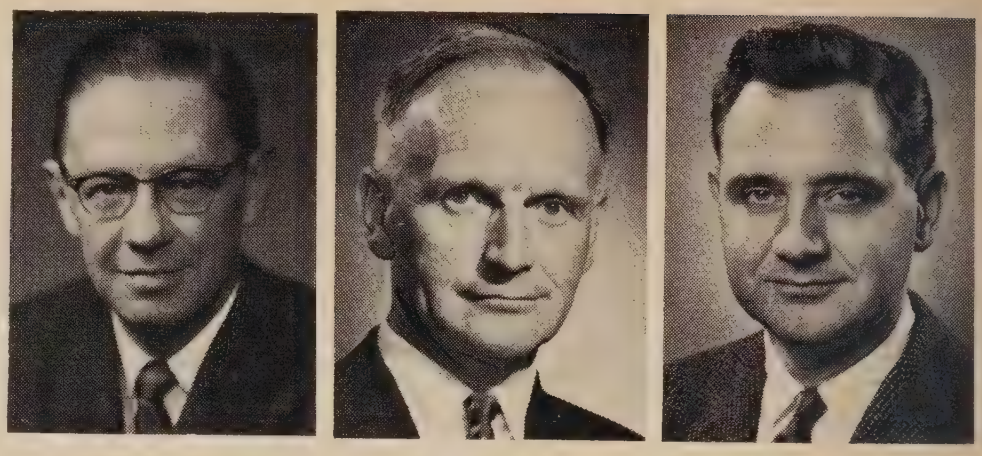
W. R. Stuart

Preceding the actual convention will be the annual meeting of the Board of Governors of the Canadian Dental Association, June 24-27, also at the Macdonald Hotel. The board sessions are open to all members of the Association who are urged to attend and participate in the deliberations.

Two Americans and one Briton headline the diversified convention program of lectures, closed circuit television demonstrations, table clinics, scientific motion pictures, and scientific and commercial exhibits. They are Harold Hillenbrand of Chicago, secretary, American Dental Association; R. W. Phillips of Indiana University School of Dentistry; and Terence Ward, prominent London, England, oral surgeon and co-founder of the newly organized International Association of Oral Surgeons.

The George Wellington Grieve Memorial Lecture, to be delivered by T. M. Graber of Northwestern University, Chicago, is entitled "Broader diagnostic horizons through panographic radiography."

Specialty sections and special interest groups also plan to hold meetings in associa-



Harold Hillenbrand (l.), Terence Ward (centre) and R. W. Phillips (r.)

tion with the national convention. Speaking to the Canadian Society of Dentistry for Children on June 28 will be J. Little and I. Kleinberg. Dr. Little will discuss clefts of the palatal structures. The relationship of dental plaque to caries and calculus formation will be Dr. Kleinberg's topic. Similar meetings, between June 28 and July 1, are scheduled by the Canadian Society of Oral Surgeons, the Canadian Society of Orthodontists, the Canadian Academy of Periodontics, and the newly organized Canadian Academy of Prosthodontists.

Social amenities have not been neglected either. A Sunday evening musicale, June 28, starts off the convention program. Beginning the same evening, the convention Arts and Handicrafts Exhibit is expected to draw a large number of participants. Dentists, members of their immediate families and their employees are invited to submit entries. An evening barbecue, featuring buffalo steaks, is slated for Monday, June 29. Tuesday evening, June 30 is set aside for fraternal reunions and a visit to the famous Alberta Game Farm. On Wednesday, July 1, the convention concludes with a gala evening program featuring the President's Banquet and Ball.

A special program is planned for ladies. Dental hygienists and dental assistants will also welcome their colleagues from other parts of Canada.

For those intending to do some sightseeing following the convention, Alberta has much to offer. There is the famous Calgary Stampede, July 6-11; Edmonton's Klondike Days, July 13-18; Jasper and Banff National Parks are unsurpassed for scenic beauty, fishing, boating, golf and just plain relaxing, all just a few hours from Edmonton.

Early registration for the national dental convention in Edmonton is urged by convention chairman W. R. Stuart. Reduced rail fare certificates are available at Canadian Dental Association headquarters.

Canada and the Provinces

HOSPITAL DENTAL SERVICES EXPAND

In Canada, more hospitals are gradually adding dental departments and seeking approval of the Canadian Dental Association through its Hospital Services Committee. As a result of committee efforts, the new edition of *Basic Standards for Hospital Accreditation* contains a completely new section pertaining to dentistry and dental staff. The C.D.A. Board of Governors, at its annual meeting last May, approved an application for a seat on the Canadian Council on Hospital Accreditation.

FILM TELLS DENTISTRY STORY

"The Challenge of Dentistry," a film sponsored in Canada by the National Recruitment Committee of the Canadian Dental Association, was seen by a third of a million viewers in the past year. Given to the C.D.A. by the American Fund for Dental Education, prints of the film have been shown on 22 Canadian television stations and to 42 smaller groups of people, mostly students. Over 330,000 people are estimated to have seen the film on television stations in eight provinces and the Yukon. More than 3,500 people have seen the film in showings to smaller groups in seven provinces.

This film tells the dramatic story of young Jim Reynolds, a high school student who is thinking seriously about dentistry as a career. The appearance of Jim's dentist on an exciting TV program opens the young man's eyes to the many things dentistry embraces. The story follows through to Jim's gradua-

tion from dental school. In sound and colour, the film runs for 28 minutes. It is available in Canada at no charge from Modern Talking Picture Service, 1875 Leslie Street, Don Mills, Ontario.

SCIENCE FAIR IN APRIL SLATED FOR MONTREAL

The Third Canada-Wide Science Fair will be held April 24-25 at the Université de Montréal, according to the Canadian Science Fairs Council. Co-sponsor of this 1964 competition for boys and girls will be ACFAS (L'Association canadienne-française pour l'avancement des Sciences). Chairman of the Fair will be Dr. Marcel Bourgon, professor of chemistry at the Université de Montréal.

Canada's leading boy and girl scientists will be chosen from entrants at the 1964 Fair. Competitors are high school students who have won top awards at regional fairs from coast to coast. At the Second Canada-Wide Fair, held in Toronto in May 1963, 53 students from 18 regional fairs were judged on their work in the two main categories: biological and physical. Awards will again be made in both categories.

In addition, the winners of two special awards, a boy and a girl, will be sent to the International Youth Science Fortnight to be held in London, England, July 27 to August 8, 1964. This will be the third consecutive year that Canada has been represented at the Fortnight by top winners in the Canada-Wide Science Fair.

"The response of students, their parents and teachers, to the science fair movement has been a dramatic reflection of the public's increasing interest in science," said H. A. Mullins, president of the non-profit Canadian Science Fairs Council. "This spreading activity has been of unique value in the personal development of the students. In addition, it provides a unique means of bringing appropriate recognition for the work of our schools and our teachers. We are confident that science fair activity will intensify in all provinces and that their finalists will go on to make significant contributions to Canada's scientific achievement."

The Canadian Dental Association is one of the sponsors of the Canadian Science Fairs Council.

PHYSICIANS ARE BIGGEST EARNERS

Physicians were Canada's highest income earners in 1961 with an average income of $17,006, according to newspaper reports of latest government taxation statistics.

It was the fourth consecutive year that physicians and surgeons ranked highest. Lawyers and notaries, ranked third in 1960, moved to second place in 1961 with an average income figure of $15,718. The engineers and architects category followed at an average of $14,692. Dentists continued in fourth place with average earnings of $12,337. Accountants were fifth at $11,267.

Average 1961 incomes of other groups were: investors, $6,320; entertainers and artists, $5,862; salesmen $5,812; and business proprietors $5,278. The largest group of taxpayers—3,947,599 persons listed as "employees"—had average incomes of $4,132. A total of 4,507,767 taxpayers in 1961 had average incomes of $4,348 and paid an average tax of $424.

TV POLL RATES DENTISTRY CAREER SEVENTH

A career as a dentist rated seventh in popularity with viewers recently polled for Telepoll, a public affairs program of the CTV television network. Over 1,000 Canadians in 10 population centres were surveyed.

As reported in *The Financial Post*, the following answers were compiled by McDonald Research Ltd. to the question, "Which three of the following professions would you prefer your child to enter?": Teacher 46.7 per cent; Dentist 26.1 per cent; Entertainer 4.5 per cent; Physician 56.8 per cent; Professional athlete 6.7 per cent; Lawyer 39.9 per cent; Engineer 42.0 per cent; Business executive 27.2 per cent; Clergyman 11.0 per cent; Scientist 32.1 per cent.

SENATE STUDIES HEALTH OF AGED

The Senate of Canada has appointed a special committee "to examine the problem involved in the promotion of the welfare of the aged and ageing" population. Senator David Croll is committee chairman.

The Canadian Dental Association was one of the organizations asked to make a submission to the committee. After the C.D.A. Dental Services Committee discussed this request at its recent meeting, a questionnaire was circulated to provincial dental organizations. The information obtained provided the basis of comments and recommendations in the brief submitted by the Association.

TOOTH SURVEY DEFENDED

The Voice of Women and a dentist have disputed federal health minister Judy La Marsh's claim that "a box full of teeth with no idea where they came from isn't much

help," according to press reports. The Minister of National Health and Welfare referred recently to the tooth collection drive sponsored by the Voice of Women for strontium 90 studies conducted by A. M. Hunt at the Toronto faculty of dentistry. Dr. Hunt later explained publicly the steps taken to provide proper identification of children's teeth used in his studies.

Dr. Hunt, also a member of the C.D.A. Council on Research, termed the Minister's statement "rather unfortunate." He reported to the Canadian Dental Association convention last June on his studies and it is expected that findings will be published in due course.

SALTER NAMED DENTAL DIRECTOR IN ALBERTA

W. A. T. Salter

W. A. T. Salter, who was recently appointed director of dental health for Alberta, has now taken up his new duties in Edmonton. A native of Victoria, British Columbia, Dr. Salter practised in that city and was associated with the dental service of the Greater Victoria school board prior to accepting his present appointment in Edmonton. He succeeds C. W. B. McPhail who recently assumed a full-time appointment at the University of Alberta.

MALCOLM TAYLOR NAMED PRESIDENT OF UNIVERSITY OF VICTORIA

M. G. Taylor, principal of the University of Alberta at Calgary, has been appointed president of the University of Victoria, Victoria, British Columbia. Canadian dentists will remember Dr. Taylor as one of the panelists on the C.D.A. feature panel presentation at the Vancouver meeting in 1962. A noted authority on health insurance, Dr. Taylor has frequently served as consultant to governments and government commissions and was formerly associated with the Department of Political Science at the University of Toronto.

SASKATCHEWAN DENTAL SCHOOL URGED

The following editorial urging early establishment of a dental faculty at the University of Saskatchewan appeared in the Saskatoon Star-Phoenix December 3:

> The need to set up a dental college at the university is such an obvious one that it is hard to find reasons why the College of Dental Surgeons of Saskatchewan did not make the move some years ago. The brief presented by the college to a recent meeting of the university senate is full of convincing arguments which the committee since appointed will have difficulty in ignoring.
>
> In short, the province urgently needs more dentists, and there does not seem to be much likelihood of finding the required number unless Saskatchewan begins soon to "raise her own." Since 1952, the population of the province has gone up by 11.2 per cent, and the number of dentists has gone down by 11.5 per cent.
>
> A moment is all that is required to calculate that each dentist must attend to 30 per cent more persons in need of dental services. The long waiting list that the average dentist keeps on hand these days is evidence that a proportion of this extra 30 per cent either fails to get attention, or gets it too late.
>
> The situation seems to be that Saskatchewan's young men who are interested in becoming dentists either go elsewhere for their training, and never come back, or that they turn to some other profession. Since no community can go without dental services without severe injury to itself, the situation calls for remedy at the earliest opportunity.
>
> If plans for a dental college at Saskatoon are laid immediately, the actual college will begin to function at a date already too late. Of course it will be years after that before the first graduates are available for the upgrading of our people's dental health.

International Items

F.D.I.—A.D.A. MEETING SLATED FOR SAN FRANCISCO IN NOVEMBER

More than 20,000 dentists and their families are expected to attend the annual sessions of the American Dental Association and the Fédération Dentaire Internationale in San Francisco in November 1964.

The 105th annual session of the A.D.A. will be held November 9-12, and the 52nd annual session of the F.D.I. November 7-14.

Dental societies throughout the world are expected to send representatives to participate in the many scientific, business and social programs. Special translation facilities will provide simultaneous interpretations of many session proceedings in French, Spanish, German and English.

Housing registration for international guests opened January 1. All housing applications are processed through the A.D.A. Housing Bureau at the A.D.A. Central Office, 222 East Superior Street, Chicago, Illinois, 60611, U.S.A. Following processing by the Housing Bureau, reservations are confirmed directly to the applicants by hotels and motels.

F.D.I. headquarters will be located in Del Webb's TowneHouse. A.D.A. headquarters will be in the Fairmont and Mark Hopkins Hotels.

The scientific session of the A.D.A. session will be presented November 9-12 in the San Francisco Civic Auditorium. Approximately 600 dental educators, scientists and practitioners from around the world will participate with simultaneous translations available for certain portions of the session.

Among the many special features planned for the session will be: a two-day international conference on journalism; an all-day conference on geographic factors influencing the occurrence of oral diseases under joint sponsorship of the International Association for Dental Research, the F.D.I. Commission on Dental Research and the A.D.A. Council on Dental Research; and a closed-chest cardiac resuscitation course presented by the United States Public Health Service.

Further information regarding the A.D.A. session may be obtained from Harold Hillenbrand, secretary, 222 East Superior Street, Chicago, Illinois, 60611, U.S.A

Information regarding the F.D.I. session may be obtained from G. H. Leatherman, Secretary-General, 35 Devonshire Place, London W.1, England.

FLUORIDATION LEGALITY ASSERTED IN U.S.

The legality of fluoridation has been firmly established by rulings of 12 state supreme courts and by refusal to review such decisions in the U. S. Supreme Court, B. J. Conway told the annual meeting of the American Dental Association last October. Mr. Conway is A.D.A. assistant secretary for legal affairs.

Courts in 12 states have ruled that fluoridation of public water supplies "does not infringe on the constitutional or legal rights of the individual and under appropriate state enabling authority is a proper exercise of the charter powers of local communities" in the United States.

"These decisions were rendered by the courts of last resort in California, Iowa, Louisiana, Missouri, Ohio, Oklahoma, Oregon, Washington and Wisconsin and by trial courts in Maryland, Pennsylvania and North Dakota," he said. On four occasions the U. S. Supreme Court has refused to review these decisions stating that no substantial federal constitutional question was involved. In the few instances where a lower court rendered an adverse opinion, that decision was promptly reversed by the state's high court, he added.

DENTAL MEDICINE GROUP TO MEET IN OREGON

The Twentieth Annual Conference of the Northwest Academy of Dental Medicine will be held at The Village Green, Cottage Grove, Oregon, May 24-27. Speakers will include Claes Lundqvist of Lund, Sweden; H. A. Zander of the Department of Periodontology, Eastman Dental Dispensary, Rochester, New York; Robert Bruckner, pathologist, University of Oregon Dental School; and B. Phateck of the University of Oregon Dental School bacteriology department.

S. F. Miles of Victoria, British Columbia, former chairman of the executive committee of the Northwest Academy of Dental Medicine, now serves as one of the group's regional advisers.

U.S. EDUCATION FUND REORGANIZES

The "American" Fund for Dental Education has recently been incorporated in Illinois. The new corporation is intended to replace the Fund for Dental Education, an Indiana corporation, as an American vehicle for collection and distribution of voluntary contributions in support of dental education. The new administrative structure is designed to handle greater program volume and to facilitate an increase in both number and amount of contributions.

A similar organization in Canada, the Canadian Fund for Dental Education, was inaugurated a year ago. It operates under a trust deed administered by the Canadian Dental Association. Headquarters of the Canadian fund is at 234 St. George Street in Toronto. A board of trustees, consisting of four dentists and a representative of the dental supply industry, manages the fund in

Canada. Liaison is maintained with the U. S. fund.

The need for increased voluntary support of dental education is one of the most critical in the field of health education. The volume of money received by the Fund for Dental Education, since it was incorporated in Indiana in 1955, has increased year by year, with the 1962 effort accumulating $350,000. The need for funds is estimated to be many times this amount. (The Canadian Fund has received approximately $23,000 in its first year.) Contributions to both funds are income tax-deductible in their own countries.

PERIODONTICS COURSE MARCH 7-8 AT UNIVERSITY OF ILLINOIS

Saul Schluger, professor of periodontics at the University of Washington (Seattle) School of Dentistry, will conduct a two-day postgraduate course March 7-8, 1964 on "Modern methods in periodontal therapy" at the University of Illinois College of Dentistry, Chicago. The course will emphasize modern methodology—debridement and surgical repair—in the treatment of periodontal diseases. Further information may be obtained from the University of Illinois College of Dentistry, 808 South Wood Street, Chicago, U.S.A.

TOOTH TRANSPLANT CONFERENCE SLATED FOR NEW YORK

Human tooth transplant will be the subject of an international seminar sponsored by the New York Institute of Clinical Oral Pathology in New York City, April 27. Guest speakers will report on work done in this field in several countries. Further information may be obtained from S. J. Behrman, New York Institute of Clinical Oral Pathology, 101 East 79th Street, New York, U.S.A.

Dental Organizations

NEWFOUNDLAND DENTISTS MEET IN GANDER

Dentists from all parts of Canada's easternmost province converged on Gander, October 2-5, 1963, to attend the Tenth Annual Meeting of the Newfoundland Dental Society. A host committee directed by past president M. J. Maguire and G. W. Hewitt kept delegates on the move with a full round of business meetings, scientific presentations and social events.

Visiting clinicians included A. E. Hoffman of Halifax and H. W. Mason of Galt, Ontario. Dr. Hoffman conducted surgical clinics on patients presented by local practitioners. Use of hypnosis in dental practice was the subject of Dr. Mason's presentation.

Clinical presentations by Island practitioners included: oral anomalies, sutures and suturing, by Jesus Austria of Twillingate; a method of treating periodontal pockets by W. J. O'Driscoll of St. John's; ectodermal dysplasia, by M. J. Maguire of Gander and M. Parsons of Glovertown; and giant-cell reparative granuloma, by M. J. Maguire. Radiologist H. Wilson of the Banting Memorial Hospital described congenital defects involving the jaws.

At a civic luncheon mayor J. Robertson praised the health benefits derived from Gander's fluoridated water. Mainland visitors — Canadian Dental Association president-elect Rémy Langlois and secretary D. W. Gullett—also addressed the meeting.

Newly elected officers of the provincial society are Kira Obrazcova of Corner Brook, president; R. W. Downton of St. John's, first vice-president; W. J. O'Driscoll of St. John's, second vice-president; D. A. Hollett of St. John's, treasurer; and R. V. Windsor of St. John's, secretary.

The West Newfoundland Dental Club will be the host organization when the Newfoundland Dental Society holds its 1964 annual meeting in Corner Brook.

WEST NEWFOUNDLAND DENTISTS ACTIVE

Now in the third year of its existence, the West Newfoundland Dental Club is well into another season of clinical meetings and public information and recruitment activities. The club brings together dentists from Deer Lake, Stephenville, Port Oaks Basques and Corner Brook for periodic business meetings and discussions on selected clinical topics. Films on dental and related subjects are screened at these meetings whenever possible.

On the public service front club members regularly address home and school groups and various service clubs. Recently the club co-sponsored a series of live television programs aired over station CBY-TV (Corner Brook). Program topics included different aspects of dental health with particular

stress on preventive measures and career opportunities in dentistry. Currently club members are promoting fluoridation of the Corner Brook water supply.

QUEBEC ASSOCIATION PUBLISHES NEW JOURNAL

A new French language dental journal, *Le Journal dentaire du Québec* has recently joined the company of dental publications circulated in Canada. Published by L'Association dentaire de la province de Québec, this journal is edited by Paul Simard of Lévis, P. Quebec. The *Journal of the Canadian Dental Association* takes this opportunity to welcome a newcomer to the dental press of Canada and extends best wishes to *Le Journal dentaire du Québec.*

MONTREAL CLUB BLACK TIE DINNER HELD IN DECEMBER

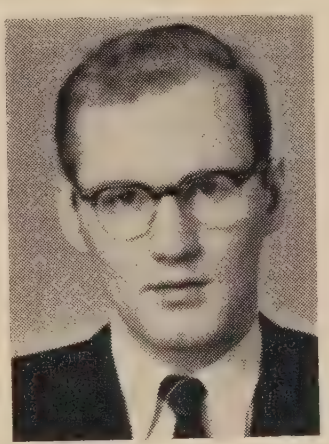
Members of the Montreal Dental Club gathered at the Queen Elizabeth Hotel, December 9, 1963, for the Club's annual Black Tie Dinner. J. H. Johnson of Toronto, the guest speaker, discussed "Dentistry—past, present and future." Honorary memberships were conferred on J. W. Gerrie, C. A. E. McCabe, L. F. McRae, J. W. Morton, and A. R. Winn.

LETHBRIDGE PUBLISHER ADDRESSES CITY DENTISTS

A thought-provoking address and a lively discussion on "The public image of dentistry" held the attention of Lethbridge dentists when Cleo Mowers, publisher and editor of the *Lethbridge Herald*, recently addressed members of the Lethbridge and District Dental Society. The occasion, the society's December dinner meeting, concluded the year's activities for dentists of southern Alberta.

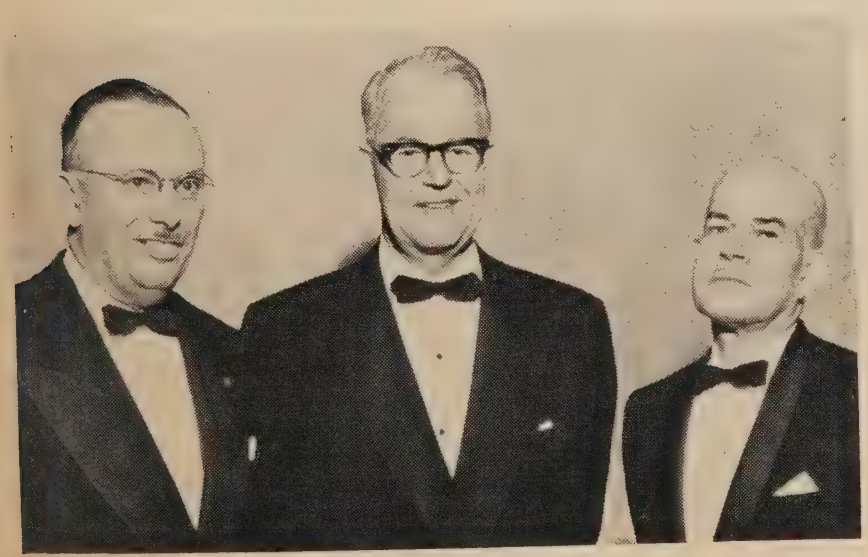
MACLEOD IS NEW PROVINCIAL EDITOR FOR NEWFOUNDLAND

R. W. MacLeod of Corner Brook has been named as the new provincial associate editor for the *Journal of the Canadian Dental Association* from Newfoundland. He succeeds B. L. Bowden of St. John's who became Newfoundland delegate to the Board of Governors of the Canadian Dental Association.

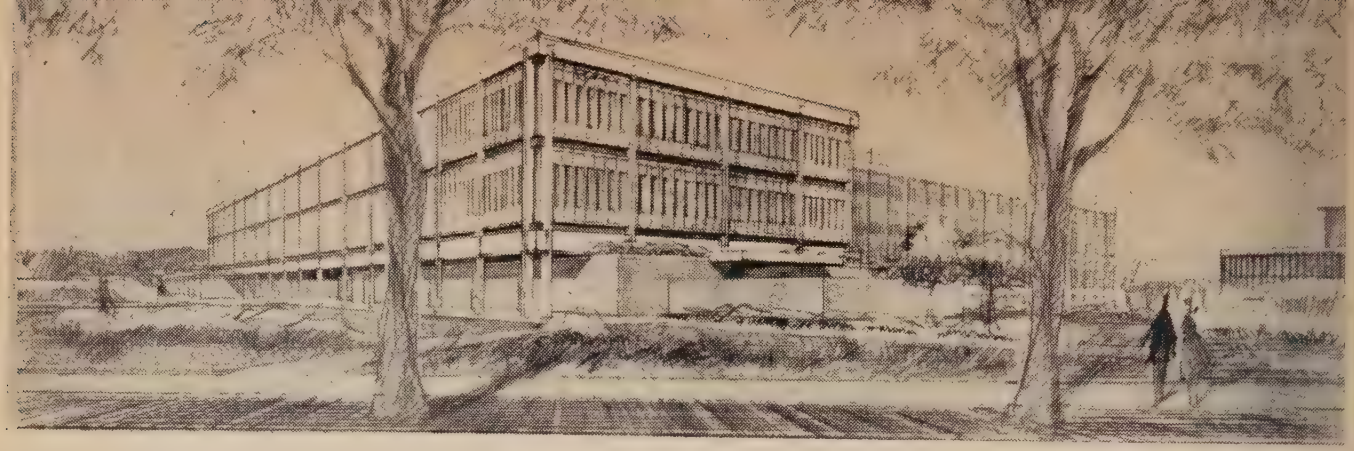


R. W. MacLeod

A 1958 dental graduate from Dalhousie University, Halifax, Dr. MacLeod—as "anchor man from number 10" will keep Journal readers informed of latest trend-setting developments from the province that daily witnesses the first light of day.



Recent recipients of honorary memberships in the Montreal Dental Club are (l. to r.) C. A. E. McCabe, J. W. Gerrie and L. F. McRae. Dr. Gerrie holds a medical as well as dental qualification.



Artist's sketch of the new faculty of dentistry building costing approximately $2 million to be constructed at the University of British Columbia. Expected completion date of the building, which will house teaching, research and clinical facilities for the faculty, is the autumn of 1965.

TWO PROFESSORS ADDRESS VANCOUVER GROUP

Two members of the Faculty of Dentistry of the University of British Columbia addressed the December meeting of the Vancouver and District Dental Society. G. J. Parfitt spoke on the early recognition of periodontal disease in a well-illustrated lecture in the afternoon, and Dean S. Wah Leung followed in the evening with a scientific portrayal of the current concepts of calculus formation.

MOUTHGUARDS PROVIDED AT PRINCE GEORGE

The dentists of Prince George have supplied bantam hockey teams with 104 mouth protectors. The executive of the hockey group plans to make the use of these guards compulsory, which will eliminate the usual rash of chipped anterior teeth this winter.

Society members attended a radiology course recently given by R. I. Yorsh of Vancouver. Both dentists and their assistants took part.

BRITISH COLUMBIA CONVENTION SET FOR MAY

International and Canadian dentistry is represented among the essayists who will address the British Columbia Dental Association convention in Vancouver, May 21-23. Two American essayists on the program are Colonel R. B. Shira, chief of dental services at Walter Reed Army Hospital in Washington, and Herbert Bloom, chief dental representative of project "HOPE." Coming from Sweden will be Claes Lundqvist who has visited western North America on previous occasions. Two Canadian contributors from the University of British Columbia are Gilbert Parfitt (originally from England) and Richard Roydhouse (originally from New Zealand).

Convention arrangements are in the hands of a committee directed by A. E Swanson, prominent Vancouver oral surgeon.

Canadian Dental Schools

$2 MILLION B.C. SCHOOL PLANNED

Plans for construction of a new building to accommodate the faculty of dentistry have been announced by University of British Columbia President J. B. Macdonald.

A building to cost about $2 million will be constructed to house teaching, research and clinical facilities for the new dental school. The building will be part of the developing Health Sciences Centre which will eventually include a university teaching hospital. Plans call for 67,000 square feet in the three-storey dental building, with provision for two additional storeys in the future. Expected completion date is autumn of 1965. It is anticipated that tenders will be called early in 1964.

A small class is expected to enrol in the first year of the dental curriculum next fall.

DALHOUSIE UNIVERSITY

Haligonian Elected.—Janet Burnham of Halifax has been elected president of the American Dental Hygienists' Association. Mrs. Burnham is director of the school of dental hygiene at Dalhousie University.

UNIVERSITY OF TORONTO

Open House on February 16.—Dental education will be on public display when the Faculty of Dentistry again stages "Open House" on Sunday, February 16. This annual event provides opportunity for everyone interested in dentistry—plus their families and friends — to visit the University of Toronto dental building and observe, through student exhibits and demonstrations, modern dental education in action. The dental building is located at 124 Edward Street, Toronto, off University Avenue and immediately south of the Hospital for Sick Children.

McGILL UNIVERSITY

P. J. Gitnick Promoted.—The Senate of McGill University recently announced the promotion of P. J. Gitnick to associate professor. Dr. Gitnick succeeds W. F. Walford who resigned last spring as chairman of the Department of Periodontology.

Fluoridation

FLUORIDATION WINS, LOSSES

Several fluoridation plebiscites were recently held in Canadian municipalities.

The town of Whitby, Ontario, voted to retain fluoridation by a narrow majority of 1,455 to 1,406. Fluoridation was instituted following a favourable vote in 1961. A plebiscite last December was made necessary by a petition signed by at least 10 per cent of the voters.

Blind River, Ontario, also approved the measure overwhelmingly by a vote of 783 to 262.

In Thornbury, Ontario, voters turned down the proposal by 304 to 160. Nipigon and Goderich, Ontario, also rejected fluoridation in plebiscites held in December. In a 40 per cent turnout in Port Arthur, voters in that city again defeated the fluoridation question 5,782 to 3,408.

Yorkton, Saskatchewan, also rejected fluoridation by 1,827 to 1,008.

The town of Carrot River in Saskatchewan ceased fluoridating, but not because of public opposition. The town recently located a new water supply in a deep well of water naturally containing two ppm fluoride.

In recent Alberta plebiscites, the measure was approved in three towns and rejected in three. Voters in Redwater, 35 miles south of Edmonton, approved water fluoridation 184 to 68. The measure was also favoured in Mayerthorpe by 85 per cent of the voters (76 for, 13 against). Barrhead voted for fluoridation by 89 per cent (641 for, 73 against). Although voters in Taber, Alberta, favoured fluoridation by 400 to 223 in their second plebiscite on the issue, the water will not be fluoridated. Alberta provincial law requires a two-thirds majority. In Hanna, 428 voters supported fluoridation while 302 voted against it. The ranching town of Brooks rejected the measure 301 to 171.

It is reported that in British Columbia, Williams Lake approved the measure and Quesnel rejected it.

FLUORIDATION IN NEW YORK CITY EXPECTED TO BEGIN BY SEPTEMBER

After a decade of debate and bitter controversy, fluoridation is expected to be placed in operation in New York City by next September. The measure was overwhelmingly approved early in December 1963 by the City Council and the Board of Estimate. Mayor Robert Wagner said it is apparent "that the overwhelming weight of competent scientific information in the nation and in New York City itself is that fluoridation is safe, effective and urgently needed. I am convinced that the steps we have taken here are essential and imperative." George James, city health commissioner, hailed the decision as "a priceless Christmas gift to the children and parents of New York City."

Prominent officials of the American Dental Association and U. S. Public Health Service had previously testified for fluoridation at a 20-hour public hearing.

DOMINION HEALTH COUNCIL ENDORSES FLUORIDATION

The Dominion Council of Health has endorsed fluoridation of community water supplies as a means of preventing dental decay. The following statement was adopted unanimously:

> "The Dominion Council of Health have again considered the question of the fluoridation of communal water supplies and unanimously endorse the resolutions of the Canadian Dental Association and the Canadian Public Health Association."

The Council consists of the Deputy Minister of National Health and Welfare, the deputy ministers of health of all provinces and a few others.

Royal Canadian Dental Corps

CHANGE OF COMMAND FOR OTTAWA UNIT

After nearly four years in the appointment, Lt.-Col. H. J. Chartrand has relinquished command of No. 54 Dental Unit R.C.D.C. Militia with headquarters in Ottawa, Ontario.

The new commanding officer, Lt.-Col. W. T. LeSage, who was recently promoted to

that rank, enrolled in the Corps as an officer cadet in 1953 and, following graduation in 1958, served with No. 15 Dental Company, Montreal. Following his release from the Regular Force in 1961, Lt.-Col. LeSage was transferred to the Militia, promoted to the rank of major and appointed second in command of No. 54 Dental Unit.

A regimental dinner to mark the change in command was held at Wallis House, Ottawa, on the evening of December 14, 1963.

Lt.-Col. G. McDougall

COLONEL McDOUGALL TO GERMANY

As previously reported in the *Journal of the Canadian Dental Association*, Lt.-Col. G. McDougall has assumed command of No. 4 Field Dental Company stationed in Germany. The unit was formerly commanded by Lt.-Col. G. C. Evans who is currently serving on the staff of the Directorate of Dental Services in Ottawa.

in memoriam

HARVEY CHETWIN ARNOTT—Dr. H. C. Arnott of Oshawa, Ontario, died on December 30, 1963. He was 71. Dr. Arnott was born in Algoma, Ontario, in 1892 and graduated from the Royal College of Dental Surgeons of Ontario in 1916. Besides his wife, Alice, he is survived by two sons, Dr. J. H. Arnott of Toronto and John M. of Oshawa; two daughters, Ida and Mrs. Jesse Chester, both of Oshawa; and one brother, Levi.

SIDNEY ALBERT MILBURN—Dr. S. A. Milburn of Toronto died on November 21, 1963. Born in Chesley, Ontario, Dr. Milburn graduated from the Royal College of Dental Surgeons of Ontario in 1920. Surviving him are his wife, Jean; two brothers, Dr. Harvey Milburn of Toronto and Russel of Chesley; and three sisters, Beatrice of Toronto and Mrs. J. A. Woodward and Mrs. J. D. Floyd of Chesley.

ADAM HUBERT ROZELLE WATSON—Dr. A.H.R. Watson of Port Hope, Ontario, died on October 25, 1963. He was 93. Dr. Watson was born in Port Hope in 1870 where he practised following graduation from the Royal College of Dental Surgeons of Ontario in 1898.

MAXWELL RICHARD PARKIN—Dr. M. R. Parkin of Vancouver died late last year. He was 77. Dr. Parkin was born in Harrowsmith, Ontario, in 1886 and graduated from the University of Toronto in 1913. In 1918 he went to Vancouver to practise and later became a life member of the Vancouver Dental Society. Besides his wife, Dr. Parkin is survived by one son, six daughters and 25 grandchildren.

GERALD LIVINGSTON PLANT—Dr. G. L. Plant of Vancouver died on December 21, 1963. He was 67. Dr. Plant was born in Utica, New York, in 1896. He graduated from North Pacific Dental College, University of Oregon, in 1918, specializing in periodontics. Following graduation he practised in Vancouver and became an honorary member of the Vancouver Dental Society. He was also a member of the Canadian, American, Californian and Western Academies of Periodontology. Dr. Plant is survived by his wife and two daughters.

ALBERT RALSTON SCOTT—Dr. A. R. Scott of Galt, Ontario, died on November 2, 1963. He was 73. Dr. Scott was born in Orillia, Ontario, in 1890. Following

graduation from the Royal College of Dental Surgeons of Ontario in 1924, he practised in Toronto until 1956 and in Thornhill until 1957 when he retired. Besides his wife, Laura, Dr. Scott is survived by two daughters, Mrs. H. Wanless of California and Mrs. C. Wood of Galt and two sisters, Mrs. N. Gill of Toronto and Mrs. J. R. Lane of Coldwater.

SERGE SHERMAN — Dr. S. Sherman of Montreal died in December 1963. He was 34. Dr. Sherman was born in Roumania in 1929 and graduated from the Université de Montréal in 1960.

MAX WACHNOW—Dr. M. Wachnow of Winnipeg died on November 19, 1963. He was 55. Dr. Wachnow was born in Winnipeg in 1908 and graduated from the Royal College of Dental Surgeons of Ontario in 1930. During World War II he served overseas with the Canadian Dental Corps. Dr. Wachnow was a founder of the dental school at the University of Jerusalem. He is survived by one sister, Frances.

conventions

Canadian Dental Association: official notice of annual meeting

The annual meeting of the Canadian Dental Association will be held at the Macdonald Hotel, Edmonton, on the following dates:

Board of Governors meeting	June 24-27, 1964
Convention	June 28-July 1, 1964

Members will make their own hotel reservations. (See convention supplement in the March issue of the Journal for a list of Edmonton hotels.)

Don W. Gullett, secretary

Canadian Society of Dentistry for Children annual scientific meeting in Edmonton, June 28

The annual scientific meeting of the Canadian Society of Dentistry for Children will be held at the Macdonald Hotel, Edmonton, on June 28, 1964, in association with the national convention of the Canadian Dental Association. All members of the Canadian Dental Association are cordially invited to attend. Included in the program are essayists, table clinics, luncheon and an afternoon cocktail party.

I. Kleinberg, Winnipeg, Manitoba: Recent findings on the dental plaque and its relationship to the caries process;
Recent findings on the dental plaque and its relationship to calculus formation.

J. Little: Normal development of the palatal structures and relationship to clefts of the palate.

announcements

CANADIAN DENTAL ASSOCIATION			FÉDÉRATION DENTAIRE INTERNATIONALE	
1964	Edmonton	June 28-July 1	San Francisco	November 9-12
1965	Quebec City	May 30-June 2	Vienna	June 26-July 3
1966	Halifax	June 12-15	Israel	
1967	Toronto	May 14-17	Paris	

FUTURE EVENTS

Date	*Function*	*Location*	*Officer*	*Address*
Mar. 21-31, 1964	Fourth Asian-Pacific Dental Congress	Singapore and Malaya	Dr. B. B. Erãna	P.O. Box 373, Manila, Philippines
April 4-5, 1964	Saskatchewan Dental Association	Saskatoon, Saskatchewan	Dr. F. R. Smith	606 Canada Bldg., Saskatoon, Sask.
May 9, 1964	Canadian Society of Dentistry for Children, Ontario Chapter	Royal York Hotel, Toronto	Dr. W. J. Simpson	844 Victoria Avenue, Niagara Falls, Ont.
May 10-13, 1964	Ontario Dental Association	Royal York Hotel, Toronto	Mrs. W. C. Durham	230 St. George Street Toronto 5, Ont.
May 21-23, 1964	British Columbia Dental Association	Queen Elizabeth Theatre, Vancouver	Dr. W. R. Upton	325-925 West Georgia Street, Vancouver, B.C.
21-23 mai, 1964	Association dentaire de la province de Québec	Ste-Marguerite du Lac Masson	Dr. P. A. Lachance	281 St-Georges, St-Jérome, P.Qué.
May 25-29, 1964	17th Australian Dental Congress	Perth, Western Australia	Dr. K. F. Henderson	242 St. George's Terrace, Perth, Western Australia

POSTGRADUATE AND REFRESHER COURSES

McGILL—The Department of Prosthodontics offers a postgraduate course in REMOVABLE PARTIAL DENTURE PROSTHESIS IN GENERAL PRACTICE, April 26-28, 1964. This is a clinical participation course in the construction of a removable partial denture prostheses, with the main emphasis on design and stress control. Enquiries and requests for application forms should be directed to Dean J. McCutcheon, chairman of the Department of Prosthodontics, Faculty of Dentistry, McGill University, Montreal, P.Que.

TORONTO—A special postgraduate course in PRACTICE ADMINISTRATION will be presented April 27-28, 1964. The course covers practical and ethical aspects of the conduct of a dental practice. Among the topics discussed are efficient office design, effective use of auxiliary personnel, diagnosis and treatment planning, case presentation, fees and fee collection, and recent developments and procedures in restorative and preventive dentistry. The course will be under the general direction of J. Kreutzer. Enrolment limit 15. Tuition fee $40. Enquiries and requests for application forms should be directed to the chairman, Division of Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

TORONTO—A postgraduate course in OCCLUSION and OCCLUSAL CORRECTION will be presented May 4-8, 1964. The course will deal with the influences of occlusion on the periodontal tissues and on the temporomandibular joints. Methods for diagnosing abnormalities of occlusion and for treating them by grinding and by splinting will be described, demonstrated and practised. Candidates will progress through lectures and demonstrations by staff, to participation on models in the laboratory, and to operating on patients in the clinic. The course will be under the general direction of C. H. M. Williams. Tuition fee $100. Enquiries and requests for application forms should be directed to the Chairman, Division of Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

Note • Due to lack of space the Journal cannot accommodate all announcements of foreign dental meetings and postgraduate and refresher courses. Readers are invited to write to C.D.A. headquarters for information concerning unlisted meetings and courses. Further information concerning listed meetings and courses should be sought from the sponsoring institution.

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Application de l'endodontie en pédodontie

par Luc J. Bertrand, D.D.S., La Sarre, P.Qué.

Le traitement des enfants tient une place importante dans l'exercice de la profession dentaire moderne. En effet, quelle est la valeur de notre thérapeutique si elle ne s'applique pas tout aussi bien aux jeunes qu'aux adultes? C'est une science en elle-même, science qu'on appelle pédodontie, qui se définit comme le domaine de la dentisterie qui s'occupe de guider la croissance et le développement de la dentition primaire et de la dentition permanente à ses débuts aussi bien que la prévention et le traitement des affections de la cavité buccale de l'enfant.[1]

A notre époque, la science s'est développée dans tous ses secteurs; il est normal que la chirurgie dentaire ait aussi profité de l'effort valeureux de ses nombreux chercheurs, acharnés à apporter à l'humanité le fruit de leur travail. Mais il ne faudrait jamais oublier que de tout siècle l'homme demeure essentiellement le même; l'opérateur consciencieux doit réaliser qu'il travaille sur un être humain. En pédodontie, le problème se complique du fait qu'on travaille chez les enfants qui demandent un doigté particulier. Il faut donc que le dentiste comprenne bien son jeune patient et lui prodigue les soins nécessaires à sa santé.

Maintenant, il importe de définir l'endodontie et d'en étudier l'application en pédodontie. Ginn nous dit que c'est un domaine de la science dentaire qui traite

de l'étiologie, des symptômes et du diagnostic des maladies pulpaires, des maladies périapicales causées par ces premières et des procédés techniques utilisés pour le coiffage de pulpe, la pulpotomie, la pulpectomie.[1] On voit donc au premier regard l'importance primordiale pour tout dentiste de prévenir la perte de dents chez le jeune, perte qui l'infirme à jamais et qui peut avoir une répercussion physique et physiologique dans sa vie ultérieure. Comment y arriverons-nous? En mettant toutes nos connaissances à profit pour arriver à établir un diagnostic précis et prescrire un traitement adéquat.

Une lésion pulpaire est chose commune dans la pratique journalière de notre art. Quelle sera la réaction du dentiste vis-à-vis celle-ci? Traitera-t-il la dent ou l'extraira-t-il? Il pourra juger en faisant minutieusement l'histoire de cas et, de là, établir son diagnostic. Il devra se souvenir que les dents primaires ou permanentes n'offrent pas les mêmes considérations de succès quant au résultat du traitement. Les dents primaires ont un avantage physiologique distinct sur les permanentes, en ce qu'elles subissent normalement la résorption de leurs racines et que, de ce fait, elles ont un apport sanguin plus généreux à la pulpe; on peut dire la même chose en comparant la jeune dent permanente à la dent adulte, exception faite de la résorption apicale. On sait que la quantité de sang a un effet sensible dans le contrôle d'une infection et pour combattre un choc qui risque de compromettre la vitalité d'une pulpe. Aussi la santé d'un jeune en pleine croissance favorise notre thérapeutique, de même que la longévité des dents primaires traitées n'est que d'une couple d'années.[2]

Histoire de cas.—Le dentiste doit d'abord observer l'aspect général de son jeune patient et juger s'il peut entreprendre un traitement endodontique. Il passe à l'examen subjectif de son patient, notant les détails qui lui sont donnés. Ensuite il examine lui-même la bouche de son patient, spécialement la zone affectée. Il compile l'histoire dentaire, évalue le bilan en fonction de l'état général.

Causes.—Quelles sont les causes qui ont rendu pathologique la condition d'une ou plusieurs dents? Il est important pour l'opérateur de trouver le pourquoi. Elles peuvent être de diverses natures.

La carie dentaire sous toutes ses formes est l'agent causal le plus fréquent; "c'est une maladie des tissus de la dent, qui se caractérise par la destruction de ces tissus, commençant sur la surface externe dans les endroits de prédilection et progressant en dedans vers la pulpe."[2] Ainsi directement, elle est liée aux obturations défectueuses, sous lesquelles une carie secondaire se développe et détruit la dentine jusqu'à la pulpe.

Les différents traumatismes que subissent les dents sont aussi une cause importante. On connaît les dangers quotidiens que rencontrent les enfants dans leur existence, soit à l'école ou au jeu. Il existe aussi les traumatismes chimiques, comme celui causé par un silicate dans une cavité profonde et ceux résultant de l'instrumentation dentaire, par exemple le fraisage continu près de la pulpe.

L'histoire de cas est la première étape vers un diagnostic valable. Mais nous devons y ajouter tous les moyens capables de nous fournir des éléments qui dirigeront notre décision finale. Rabinowitch nous suggère la procédure suivante: (1) radiographies; (2) examen de l'état de ou des dents affectées et celui des tissus environnants; (3) établissement de l'âge chronologique et physiologique du patient.[3] A ceci, on peut ajouter les tests cliniques suivants: (1) vitalométrie; (2) épreuve du chaud et du froid; (3) présence ou absence d'odeur particulière; (4) saignement; couleur, quantité.[4]

Diagnostic.—Le diagnostic est l'interprétation de l'histoire, de l'examen clinique et des résultats des tests cliniques, d'où découle le choix du traitement, soit l'extraction si on n'est pas humainement capable de sauver la dent où un traitement plus conservateur n'aurait aucune chance de succès, soit l'endodontie qui offre trois

méthodes, selon la gravité du cas à traiter: (1) coiffage de pulpe; (2) pulpotomie; (3) pulpectomie.

Traitement.—Nous avons maintenant posé notre diagnostic à la lumière des symptômes présents, résultat de notre examen subjectif et objectif du jeune patient. Il importe de prescrire un traitement. Nous diviserons celui-ci en donnant d'abord le critère endodontique, le traitement lui-même et enfin le contrôle de la thérapeutique employée.

Critère en endodontie

L'idéal en endodontie est de maintenir la vitalité complète de la pulpe pour permettre la formation de la racine, ce qui nous donne, la pulpe étant vivante et les racines formées complètement, une restauration esthétique et fonctionnelle.[4] Mais il est à remarquer que ceci est l'idéal et qu'on ne peut pas toujours en arriver là. Il faut donc compromettre, soit en oblitérant partiellement ou complètement la chambre pulpaire et ses canaux radiculaires. Coolidge s'exprime ainsi en parlant des objectifs d'un traitement pulpaire: "The purpose of pulp treatment and root canal filling is to prolong the usefulness of a tooth, so that it may function in mastication after the loss of pulp without harm to its host."[5]

Pour accomplir ceci, continue Coolidge, il faut d'abord éviter de forcer les bactéries à travers l'ouverture périapicale par nos instruments, ensuite nettoyer et stériliser complètement le canal, enfin le remplir pour prévenir l'action toxique des bactéries sur les tissus périapicaux.[5] Ainsi on favorise la nature qui s'occupera de la récupération physiologique des tissus intéressés. Cependant il serait bon de noter ici qu'une dent dévitalisée n'est pas morte à cause de cela: Selwood nous affirme que la membrane péridentaire demeure vivante et l'intégrité de cette dent est maintenue par celle-ci.[3]

On peut donc résumer que le seul vrai critère dont dépend le succès d'un traitement endodontique est la présence ou l'absence de bactéries nuisibles dans la chambre pulpaire ou à l'apex, lesquelles sont le plus souvent les streptocoques viridans et antihémolytiques.[6] Brauer ajoute que le facteur de résorption radiculaire subséquente au traitement de la pulpe ou des canaux d'une dent primaire est aussi une condition importante pour déterminer le succès ou la faillite d'un cas; pour une jeune dent permanente, la continuité du développement des racines après une coiffe de pulpe ou pulpotomie, indique une activité maintenue des odontoblastes dans une pulpe vivante sans infection.[2] On base donc notre traitement endodontique sur le principe que les bactéries et leurs toxines peuvent être neutralisées et que l'oblitération partielle ou complète d'une pulpe nous permet de garder la dent comme unité fonctionnelle de cette dentition, et ceci non au détriment de la santé générale du patient.

Traitement lui-même

Coiffage de pulpe.—Le coiffage de pulpe est ce procédé utilisé pour la protection d'une pulpe vivante légèrement exposée par l'emploi d'un agent antiseptique ou sédatif qui permet à la pulpe de se cicatriser et maintenir sa vitalité et sa fonction normale.[1]

Notre diagnostic se basera sur deux choses; d'abord l'excavation de la dent elle-même et ensuite les signes cliniques qu'on remarque: profondeur de la carie, couleur de la dentine, sensation au fraisage, histoire de douleur au préalable. Ainsi on peut dire que le coiffage de pulpe est indiqué quand on a: (1) une sensation douloureuse au toucher; (2) une légère hémorragie du point exposé; (3) une couleur normale de la dentine adjacente à l'exposition; (4) une minime portion de la chambre pulpaire exposée.[6]

Par contre, le traitement n'est pas à conseiller quand on rencontre: (1) une hémorragie excessive; (2) une couleur sanguine trop sombre indiquant alors une dégénération de la pulpe; (3) une trop grande surface exposée; il nous sera impossible d'obturer convenablement avec

notre matériel, et ceci indique souvent le prélude d'une dégénérescence pulpaire.[6]

Plusieurs techniques employées sont conseillées dans la littérature, mais nous préférons celle qui se sert de l'hydroxyde de calcium immédiatement sur la pulpe. Il faut d'abord bien isoler la dent, ensuite enlever la dentine cariée avec des fraises rondes ou curettes et enfin bien nettoyer la cavité avec du peroxyde. Plusieurs recommandent alors de placer un antiseptique puissant directement sur la pulpe exposée, par exemple du phénol;[4] nous ne favorisons pas cette technique, à cause de l'action violente qui endommage aussi bien les tissus pulpaires qu'elle détruit les bactéries présentes. Il serait plutôt préférable d'employer une substance dont l'action est prouvée, et qui serait mieux tolérée par la pulpe: le citronnellol est un antiseptique doux qui est bien supporté par la pulpe. Ensuite on applique sans pression le matériel coiffeur, l'hydroxyde de calcium, directement sur la pulpe. Celui-ci a une action stimulante sur les odontoblastes pulpaires qui produisent le support nécessaire à isoler la pulpe et à assurer le succès de l'opération,[2] qui, d'après les statistiques complétées par Rosenstein, est dans l'ordre d'environ 90 cas réussis sur 100 traités.[6] Puis, on ferme la dent avec un sédatif, l'oxyde de zinc-eugénol et on garde sous observation pendant 5 ou 6 semaines. Cette période est indispensable pour contrôler le succès de notre intervention, avant de sceller cette dent avec une obturation permanente.

Le coiffage de pulpe dans une dent permanente n'a pas autant de succès parce que l'apport sanguin à la pulpe est réduit par un foramen plus rétréci. Mais les dents permanentes d'un enfant ont des racines encore en pleine période de croissance et l'apport sanguin y est généreux.

"Pulp capping," termine Rosenstein dans son article "Pulp Capping in Children's Teeth," "offers a simple and efficient method of treating many vital pulps exposed in children's teeth, which otherwise might require complicated treatment or extraction. As a means of reducing the incidence of premature loss of children's teeth and enhancing the value of dentistry for children, pulp capping is an effective aid to all members of the dental profession who include children in their practice."[6]

Pulpotomie.—On définit la pulpotomie comme étant l'oblitération partielle ou complète de la partie coronaire de la chambre pulpaire, protégeant ainsi la vitalité des tissus non touchés.[1]

Bien que le coiffage de pulpe soit un moyen sûr de sauver une dent, moyen acceptable lorsqu'on a une légère exposition de pulpe, la pulpotomie est à conseiller si l'exposition est trop étendue, ou si une trop grande portion coronaire a été détruite par la carie. Le but de ce traitement est d'enlever une portion de la pulpe et de maintenir la vitalité dans le reste de la dent, préférant ainsi laisser une partie des tissus en place en comparaison avec l'extirpation totale qu'on rencontre dans une pulpectomie.

On divise la pulpotomie en deux: pulpotomie vitale et pulpotomie dévitalisante. La première se sectionne elle-même en deux parties: pulpotomie partielle c'est l'oblitération incomplète de la partie bulbaire d'une dent, tandis qu'une pulpotomie complète, c'est l'excavation entière de la partie coronaire de la pulpe.

Ce traitement est indiqué dans les cas suivants: (1) dans les dents d'enfant où le foramen apical n'est pas encore complètement rétréci à sa grandeur minimum, comme chez l'adulte; (2) dans l'exposition de pulpe de dents antérieures fracturées aux coins mésiaux ou distaux, résultat d'un traumatisme; (3) dans les dents où la carie a exposé une grande partie de la pulpe; (4) dans des dents postérieures, où l'extirpation totale de la pulpe serait très difficile; (5) seulement dans les cas où le foramen apical est assez large pour permettre un apport sanguin adéquat.[1]

La technique, comme toute intervention endodontique, requiert la plus stricte aseptie. On commence par enlever toute la carie, on découvre la pulpe. On procède alors au retrait partiel ou complet des

tissus corono-pulpaires à l'aide de curettes stériles. L'hémorragie, causée par la lésion des vaisseaux, peut être contrôlée partiellement par une application topique d'hypochlorure d'adrénaline. Ensuite le champ opératoire est lavé avec une solution salée chaude et du peroxyde, asséché avec des boulettes de coton; on place une pâte d'hydroxyde de calcium et d'eau distillée sur la pulpe. Zander[4] et Easlick[7] ont démontré que cette substance favorise une calcification dentinaire plus rapidement que toute autre substance. On place un ciment d'oxyde de zinc-eugénol et on garde cette dent sous observation pendant cinq à six semaines. S'il n'y a rien à signaler après un contrôle sérieux, on peut alors obturer en permanence.

La pulpotomie dévitalisante a été plus employée dans le passé qu'elle ne l'est maintenant. Elle consiste à introduire une pâte dans la chambre pulpaire, pâte à base de paraformaldehyde qui dévitalise les tissus radiculaires. On lui préfère la pulpotomie vitale qui se fait en une seule séance et qui a plus de chance de succès.[2]

Ce traitement comporte des avantages précieux dans notre pratique dentaire. D'abord il nous évite d'entrer dans les canaux, et ceci est important quand on connaît la grandeur de l'ouverture apicale d'une dent temporaire ou jeune permanente. Ensuite les ramifications radiculaires, qui sont difficiles d'accès quand on fait une pulpectomie, demeurent remplies de leurs tissus propres. Enfin s'il ne réussit pas, on peut toujours entreprendre le traitement de canal.

Pulpectomie.—La pulpectomie se définit comme étant l'extirpation totale d'une pulpe normale ou pathologique.[1]

C'est la dévitalisation de la dent. Son objet est la substitution de la pulpe par un matériel inerte qui obture hermétiquement les canaux radiculaires. Si le canal est vide, les fluides tissulaires peuvent s'infiltrer par le foramen apical, y demeurer pour un certain temps, devenir des protéines étrangères, subséquemment agir comme irritant toxique aux tissus périapicaux.

Le traitement de canal peut s'employer aussi bien sur les dents primaires que permanentes. Pour les dents primaires, il est préférable de tenir compte des facteurs qu'il faut considérer avant d'entreprendre le traitement, à savoir: (1) la santé de l'enfant; (2) la conduite et la coopération de l'enfant; (3) l'importance stratégique de la dent; (4) la condition de la dent; (5) l'interprétation radiographique.[1]

La technique nous prescrit la plus stricte aseptie. Un nettoyage mécanique le plus parfait possible doit précéder le remplissage et ainsi éviter les récidives. Comme matériel obturateur, on emploie une substance qui sera bien tolérée par les tissus, tels que les pointes de gutta-percha ou d'argent ceci pour les dents temporaires ou permanentes. Il existe une pâte, appelée pâte de Howe, formée d'un mélange d'oxyde de zinc-eugénol avec du nitrate d'argent dont on se sert pour obturer les dents temporaires dévitalisées. Rabinowitch décrit la technique qui consiste à remplir la chambre pulpaire et les canaux radiculaires de ce mélange après un nettoyage; il rapporte du succès sur plusieurs cas traités.[3]

Fractures.—La fracture d'une dent chez l'enfant doit retenir l'attention du dentiste à cause de son importance stratégique et sa valeur psychologique sur le développement ultérieur de l'enfant. On peut traiter les fractures soit par le coiffage de pulpe, la pulpotomie ou la pulpectomie.

Dans les cas de fracture comprenant la pulpe, il n'est pas à conseiller d'employer le coiffage de pulpe surtout si la fracture date de quelque temps. Sweet nous dit que les chances de faillite du traitement sont de l'ordre de 30 à 50 pour cent.[8] Il n'est pas le seul à favoriser la pulpotomie: Zanders nous la conseille, parce que, dit-il, l'amputation aseptique d'une partie de la pulpe peut éliminer le tissu infecté, permettant ainsi aux tissus de lutter non pas pour leur propre survivance, comme dans une coiffe de pulpe, mais plutôt pour une calcification dentinaire, favorisée par le stage embryonnaire de la jeune pulpe et l'apport généreux du sang à l'apex élargi.[4]

Quoique la pulpotomie soit le traitement idéal d'une dent fracturée, on doit cependant employer le traitement de canal dans les cas où la pulpe est nécrosée ou gangrénée. Il importe de savoir différencier ces deux conditions de la pulpe; la nécrose est due à la mort de la pulpe sans infection bactérienne, tandis que la gangrène est une décomposition de la pulpe due aux bactéries. Il est assez difficile de diagnostiquer ces changements pulpaires, mais on peut se guider soit par la réaction négative au vitalomètre, par la décoloration de la dent (causée par la décomposition de l'hémoglobine du sang déposé dans les tubuli dentinaires) ou par une infection périapicale, aperçue à la radiographie, si la fracture existe depuis quelque temps.[9]

Contrôle du traitement

Nous avons vu les différents traitements d'endodontie qu'on peut donner en pédodontie. Mais quelle est leur valeur si on ne les poursuit pas jusqu'au résultat final? De plus, nous devons nous attendre à une certaine proportion d'insuccès; il importe donc d'observer nos patients traités et de noter tous les signes qui pourraient nous indiquer un échec possible. Pour les coiffages de pulpe et pulpotomies, nous devons sceller la dent pour cinq ou six semaines et la tenir sous observation; une histoire de douleur post-opératoire confirme souvent l'insuccès de l'intervention. Nous devons suivre la pulpectomie par des radiographies prises six mois après le travail pour contrôler la disparition d'infection et la régénérescence osseuse.

Discussion

L'essentiel d'un traitement est d'arriver à un résultat satisfaisant, ce qui nous permet de garder la dent et éviter l'extraction.

Nous appartenons à l'ère des antibiotiques; il n'est donc pas surprenant de lire que ceux-ci sont employés en endodontie. Certains dentistes préconisent leur usage pour la pulpotomie. Nous ne pouvons mettre en doute leur valeur comme traitement spécifique des infections bactériennes mais, écrivent James, Englander et Massler dans un article intitulé 'Histologic Response of an Amputated Pulp to Calcium Components and Antibiotics,' "il faut leur préférer l'hydroxyde de calcium qui semble favoriser une plus grande incidence de calcification, une plus légère incidence de résorption interne, une inflammation locale moins grave."[10]

Ces traitements spécifiques sont la conséquence de vingt années de recherche. Que nous réserve l'avenir? Que penser de la valeur de l'ionophorèse, technique basée sur l'électrolyse, qui donne de bons résultats dans certains cas? Il est donc nécessaire pour un dentiste d'évoluer avec son siècle; il s'agit d'être à la page, prendre connaissance des articles de la littérature dentaire, savoir se renseigner auprès de ses confrères.

En concluant disons qu'il est parfois difficile et épuisant de traiter les enfants. Souvent on doit biaiser en employant un traitement plus rapide plutôt qu'un autre plus long, qui serait indiqué pour ce cas: ceci un dentiste le juge en voyant les dispositions du jeune patient. Cependant jamais l'opérateur ne peut perdre patience, tenter de causer le moins de douleur possible et accomplir un travail de prévention.

". . . Le propre du cerveau humain doit être d'utiliser sa liberté au service de l'ordre et de la justice pour atténuer toute souffrance . . . Le devoir et le propre de l'homme, même prêt à accepter et ayant compris la souffrance, c'est de soulager celle des autres. . . ."[11] Ainsi s'exprime Chauchard dans la conclusion de son traité sur la douleur; tout thérapeute devrait toujours se souvenir ces paroles.

"Tous les spécialistes," disait le Souverain Pontife Pie XII, au XIIe Congrès international d'odontostomatologie de la Fédération dentaire internationale, en septembre 1957, "tombent d'accord pour déclarer que la prévention est le seul moyen de porter secours à de vastes ensembles sociaux."[12] Nous nous devons de pratiquer une dentisterie préventive chez les enfants pour obtenir les résultats que nous espérons.

Enfin le chirurgien dentiste doit toujours garder son sang-froid; il doit être psychologue devant les réactions de l'enfant, essayer de les comprendre complètement, diriger son travail pour qu'elles lui soient favorables. Laissons parler le Saint Père sur ce sujet: "L'appréhension bien connue des clients pour la douleur des interventions sur les dents et les conséquences fâcheuses qui s'ensuivent, n'ont pas manqué d'attirer l'attention des psychologues. La partie de votre art, qui étudie les soins dentaires à donner aux enfants, s'occupe tout particulièrement de ce problème. Il est facile de comprendre, par exemple, que l'attitude de l'enfant vis-à-vis du dentiste commandera presque toujours des réflexes d'adulte. Si, grâce au judicieux concours des parents et du chirurgien lui-même, celui-ci apparaît à l'enfant comme un ami, qui rend un service important à sa santé, à son développement et même à son travail, il est vraisemblable qu'il continuera à le consulter dès que le besoin ou la prudence le conseilleront."[12]

Summary

Endodontic treatment of deciduous and young permanent teeth is complicated by the presence of active resorption or a wide funnel-shaped opening at the apexes of such teeth. On the other hand an abundant blood supply enhances the chances of healing following endodontic treatment.

The author describes the methodology of pulp capping, pulpotomy and pulpectomy, and furnishes criteria governing the choice of each of these treatments.

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3e avenue Est

La recherche dentaire • Comme dans toutes les autres branches de la science, des hommes d'élite, à l'esprit inventif, ont contribué à la découverte des causes d'affections buccales et au perfectionnement des méthodes de traitement. Bien des mystères restent à être élucidés et un champ d'action illimité s'offre à ceux qui sont attirés par les joies de l'investigation. Des laboratoires très bien équipés et des fonds de plus en plus importants sont mis à la disposition des chercheurs.—*Le Chirurgien-dentiste.*

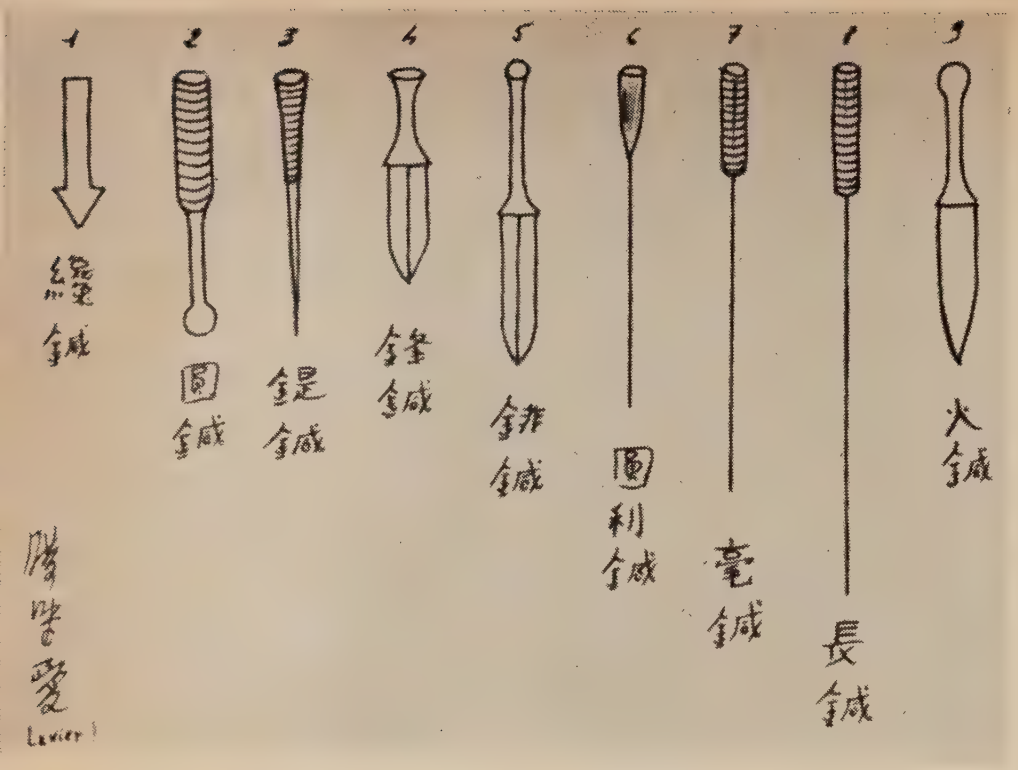

FIGURE 1 Les neuf formes d'aiguilles antiques (d'après Ou Wei Ping).

Introduction en pratique courante de l'acupuncture sur le plan odonto-stomatologique

par L. P. Valery, Marseille, France*

Première considération

Très tôt les Chinois conçurent, pour expliquer la vie, le phénomène d'une circulation d'énergie dans le corps par des canaux invisibles appelés "Méridiens." Certains de ces canaux aboutissent à des organes et, parcourant les parties superficielles du corps humain, sont soumis aux influences du Yang (force relevant du cosmos). D'autres canaux, plus profonds et plus intenses, véhiculent l'énergie du Yin (force tellurique). Du déséquilibre de ces circulations naissaient la maladie et la mort. L'homme faisait entièrement partie du cosmos et du traitement de ces deux forces dépendaient le rétablissement de l'équilibre, le retour à la santé.

Il n'y eut jamais d'école de médecine en Chine. Les traditions étaient familiales et les secrets étaient transmis de père en fils. La base de la médecine chinoise écrite fut la publication, à la fin de la dynastie Chou, deux cents ans avant notre ère, du Neiting ou "livre de l'immatériel".

La grande règle était qu'il valait mieux prévenir les maladies que les guérir. Ces conseils recueillis plus tard par Sun Semiao en 1330 sont parvenus jusqu'à nous et ils sont toujours d'une troublante actualité: "Boire peu et uniquement quand on a soif, éviter les inquiétudes, tempérer les désirs, dominer les émotions et les sentiments, éviter trop de bruit, de laisser aller . . . "

Mais antérieurement au Nei Ting, l'acupuncture était appliquée dans tout

*Ex-professeur à la faculté d'odonto-stomatologie de l'Université de Mexico.

l'empire chinois jusqu'aux marches du Nord.

Les aiguilles et la puncture.—A l'origine, on faisait usage d'aiguilles de silex en puncture. Ce fut l'empereur Hang-Ti qui, en 2687 avant notre ère, prit sur lui d'officialiser l'acupuncture et de remplacer les aiguilles de silex par des stylets métalliques conçus pour un usage thérapeutique (Figure 1).

Les anciens utilisaient neuf formes classiques d'aiguilles dont on trouve la description et la nomenclature dans la plupart des traités modernes.

Une aiguille doit nécessairement être cylindrique. Sa pointe seulement doit être conique. Lorsqu'elle a traversé la peau, elle peut sans aucune difficulté être enfoncée à n'importe quelle profondeur, sans effort, ni douleur supplémentaire pour le patient (la profondeur requise est en moyenne 3 à 5 mm.).

En France, une théorie moderne vient de mettre "à la mode" le monométallisme. Elle assure en effet que le point choisit lui-même le sens dans lequel il doit régir (tonification ou dispersion) et préconise l'emploi de l'acier, métal neutre. Cependant, l'expérience de plusieurs siècles a montré que les aiguilles de métal blanc (argent, par exemple) avaient une action sédative, tandis que les aiguilles de métal jaune (or, en particulier) une action tonifiante.

Lorsqu'on enfonce une aiguille dans les téguments, elle est comme happée, maintenue par un étau. Cela est un excellent pronostic; cela indique une réponse de l'organisme et témoigne de la présence de l'énergie. Au contraire, lorsque l'aiguille s'enfonce et ressort sans résistance, des réserves doivent être faites quant au pronostic général et aux résultats thérapeutiques.

Indications de l'acupuncture.—La limite habituellement assignée à l'acupuncture englobe le fonctionnel à l'exclusion du lésionnel. La distinction entre fonctionnel et lésionnel ne nous paraît pas très claire, ni très conforme au processus des phénomènes pathologiques; nous la corrigerons en déclarant que l'acupuncture est indiquée dans tous les troubles réversibles, fonctionnels ou lésionnels (Kalmar).

Sous l'angle odonto-stomatologique il peut se présenter, selon Vacelet, trois éventualités:

— il ne faut pas traiter un malade qui présente des lésions dans lesquelles l'acupuncture serait sans effet (sarcome, tumeur maligne);

— par contre, l'acupuncture s'avère supérieure à toute autre thérapeutique, allopathique ou homéopathique (névralgies faciales);

— dans beaucoup de cas, l'acupuncture n'est pas supérieure aux méthodes classiques, mais apporte un soulagement rapide, efficace et spectaculaire pour les patients (pulpite, abcès . . .).

Comment conduire un traitement d'acupuncture.—On peut à chaque maladie attribuer un vaisseau merveilleux. On piquera en premier lieu le point maître (action de mordansage) de ce vaisseau merveilleux. Dans un deuxième temps, on rétablira l'équilibre de l'énergie harmonisation des pouls à un niveau moyen. Puis on piquera le point spécial. On agira ainsi sur l'ensemble d'une fonction ou d'un organe. Ce point répond plus à un syndrôme qu'à un symptôme. Ensuite on traitera les symptômes. Pour chaque affection, on a établi une liste de points classés par méridiens. Enfin, on piquera le point en synergie avec le point maître du vaisseau merveilleux utilisé dans le premier temps du traitement.

Une des conditions essentielles du succès est la localisation précise des points. La piqûre en marge des points n'a qu'une action très faible. L'étendue cutanée sur laquelle repose l'action de l'aiguille peut être figurée par un carré de 2,5 mm de côté. Les repères des points sont des saillies osseuses, des muscles, des interlignes articulaires, des orifices naturels . . . De nos jours, un appareil mis au point par le professeur agrégé Brunet et L.

Grenier, le punctomètre, permet la localisation précise des points de puncture.

L'acupuncture envisagée sous l'angle odonto-stomatologique.—Il est traditionnel, dans notre spécialité, d'utiliser pour les algies d'origines diverses la thérapeutique normale accompagnée d'aspirine et de ses dérivés. Dans ce domaine, l'acupuncture présente un double avantage. Elle soulage sans danger d'une part et sans réaction d'autre part. N'introduisant pas de médicament, même à faible dose, elle ne provoque jamais de phénomène de sensibilisation ou d'intolérance (Vacelet). Elle peut d'autre part être associée à n'importe quelle autre thérapeutique.

J'ai pu traiter 30 accidents de dents de sagesse, 20 cas de stomatites-gingivites, 45 cas de complications post-opératoires, et six cas de névralgies faciales. Dans tous ces domaines, la méthode a montré une efficacité que les patients ont la plupart du temps soulignée, eux-mêmes.

Accidents de dents de sagesse: dans cette indication, des résultats intéressants ont été obtenus chez des sujets présentant des signes inflammatoires importants accompagnés ou non de trismus. Résultats cliniques: (1) disparition des algies (1re séance); (2) résolution du trismus; (3) retour à la normale du capuchon muqueux, (4) disparition des adénopathies satellites.

Madame D., 29 ans: Péricoronarite de la troisième molaire inférieure. Arrivée dans notre cabinet, la patiente souffre de douleurs irradiées à l'hémiface, trismus serré (1 mm. environ d'ouverture). L'acupuncture pratiquée provoque une sédation et une ouverture de 1 cm.

Monsieur A., 31 ans: Abcès provoqué par la troisième molaire inférieure. Avulsion. Sédation des algies dans la première séance, apparition d'un trismus serré dont manifestation douloureuse, le lendemain de l'intervention. Deux applications d'acupuncture à deux jours d'intervalle permettant de le faire céder.

Traitement des paradontoses, gingivites, stomatites: l'acupuncture s'est avérée très efficace dans le cas d'inflammations de la muqueuse. Nous avons eu une action de décongestion et une action nette sur la fétidité de l'haleine du sujet et sur son état général.

Accidents post-opératoires d'origines diverses:

Monsieur S., 40 ans: Après avulsion de la première prémolaire inférieure: douleurs irradiées et rebelles aux analgésiques habituels. Sédation des algies lors de la première application.

Névralgies faciales: difficilement traitées par l'allopathie, mieux traitées par l'homéopathie, résistent mal à l'acupuncture.

Permettez-moi de conclure cet exposé en vous soulignant l'efficacité de l'acupuncture qui permet de préconiser son emploi régulier dans la majorité des cas intéressant notre spécialité.

Deuxième considération

Au cours de ce deuxième exposé, nous citerons en premier lieu les différents points qui trouvent leur indication majeure dans la lutte contre la douleur c'est-à-dire où l'acupuncture s'avère supérieure à toute autre thérapeutique, allopathique ou homéopathique (névralgies faciales, trismus), puis les cas où l'acupuncture n'est pas supérieure aux méthodes classiques, mais apporte un soulagement rapide, efficace et spectaculaire pour les patients, gingivo-stomatite, abcès, pulpite . . .).

Il y a donc dans notre spécialité un vaste domaine pathologique pouvant rendre les plus grands services. Comme le disait si justement Lafuye: "L'acupuncture dépouillée de ses brouillards d'Extrême-Orient pourra, ainsi modernisée, être étudiée, comprise, aimée par un nombre toujours croissant de médecins occidentaux."

Permettez-moi, avant d'énumérer les principaux points d'acupuncture utilisés dans notre spécialité, de citer quelques résultats en médecine générale (Docteur Goux). On peut ainsi classer et chiffrer les résultats: les troubles psychiques: surexcitation, surmenage, émotivité, dépression, neurasthénie. Les succès sont de

l'ordre de 90 à 95 pour cent; les céphalées, 90 à 95 pour cent; l'insomnie, 85 à 90 pour cent; les troubles ovariens, la constipation, 85 à 90 pour cent; les troubles hépatiques et vésiculaires, les troubles vésicaux, 80 à 85 pour cent; l'asthme et le rhume des foins, 75 à 80 pour cent; les rhumatismes, arthrites et peri-arthrites, lumbago, sciatique, 60 à 70 pour cent; les névralgies, 50 à 60 pour cent.

Le but de cet exposé étant essentiellement pratique, nous préciserons les repères pour localiser les points (Figure 2). Ce sont des saillies, des orifices naturels, des plis de flexion cutanés, à partir desquels on mesure des unités conventionnelles. Des unités métriques en effet seraient la cause d'erreurs par suite des variations considérables de taille et d'embonpoint d'un sujet à un autre. Il faudra donc utiliser soit des fractions de distance entre deux repères, soit compter à partir d'un point avec une unité propre à chaque individu. Il nous a semblé que le travers de doigt — qui est très couramment utilisé — donnait les meilleurs résultats. Le travers de doigt du sujet — bien entendu — est l'unité la plus simple et la plus constante. On prendra la largeur de la deuxième phalange du médius.

Par l'utilisation des coordonnées définissant le point, on arrivera ainsi toujours dans son voisinage immédiat. Pour en préciser l'emplacement, on s'aidera alors des trois notions suivantes: (1) Un point d'acupuncture est toujours sensible, sinon douloureux, et cela d'autant plus qu'il est indiqué d'agir sur lui. (2) Tous les points d'acupuncture sont situés au fond de petites dépressions perceptibles avec la pulpe du doigt et mieux avec l'extrémité arrondie d'un stylet. (3) Une aiguille enfoncée sur un point d'acupuncture semble saisie, comme dans un étau, par les tissus. Lorsqu'on essaie de la retirer, la peau se soulève en cône; alors que, en dehors du point, l'aiguille peut se retirer librement sans opposition de tissus.

Névralgies faciales

Observation No. 1 — Madame F. L., 32 ans, adressée par le Docteur Harthung, le 6 novembre 1962. Après extraction de la dent de sagesse inférieure droite, la malade est atteinte depuis cinq semaines de tics douloureux de l'hémi-face droit qui s'étendent à l'oreille, au nez, aux tempes, à la bouche et aux dents. Les accès se

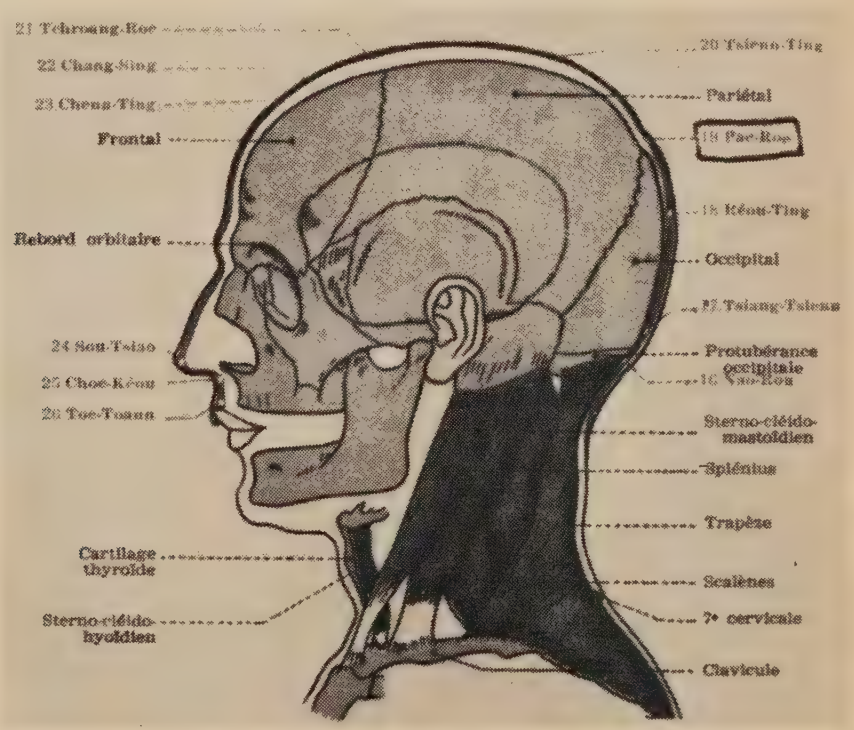

FIGURE 2 Vaisseau gouverneur.

produisaient de plus en plus régulièrement, malgré les antialgiques dont notre arsenal médicamenteux dispose, aucune amélioration notable. La dernière crise après son traitement dura 21 heures. A l'examen clinique, la malade présente un état asthénique très prononcé avec crainte intense de la crise. Trois séances espacées de quatre jours amènent une disparition complète des névralgies.

Observation No. 2.—Monsieur M., 63 ans, profession: avocat. Névralgie faciale de l'hémi-face droit datant de 4 mois. Etiologie: névralgie faciale à frigore. Dès le début de la maladie, Monsieur M. se plaint de douleurs auriculaires et faciales. Suivant sa propre expression, le "nerf" lui brûle la peau avec en conséquence impossibilité presque totale de se raser. Douleurs térébrantes lancinantes. Quantité de traitements ont été prescrits, tous les analgésiques connus, malheureusement sans résultat. Durée du traitement: cinq séances espacées de quatre jours pour les premières et de sept jours pour les deux dernières. Au cours de la 4e séance disparition complète des crises, depuis lors, cette personne avec qui je suis resté en contact n'a plus eu aucune manifestation douloureuse.

Principaux points de puncture utilisés dans les névralgies faciales et leurs localisations:

Le premier point est le 7e point du poumon — que nous devons piquer avec des aiguilles d'argent à droite et à gauche. Il est situé dans la gouttière radiale un travers de doigt au-dessus de l'apophyse styloïde du radius. C'est ce même point, d'après Vacelet, qu'il faut piquer également à l'argent pour enrayer l'écoulement exagéré et gênant de la salive.

Le 2e point est Fong Long, 40e point et LO de l'estomac. On le pique à l'or du côté opposé à la douleur. Localisation: sur la jambe. Face externe, très légèrement en avant du bord intérieur du péroné. Un travers de doigt au-dessus de la ligne qui joint l'extrémité intérieure de la malléole externe à la tubérosité externe du tibia.

Le 3e point est important—60e point de la vessie Kroun-Loun, entre la malléole externe et le tendon d'Achille sur le bord supérieur du calcanéum.

Le 4e point est 2e point du foie Sing-Tsienn. Point de dispersion, piquer à l'argent au pied, dans l'intervalle entre le 1er et le 2e orteil, contre le premier.

Ces principaux points généraux ont été associés dans tous les cas à l'acupuncture locale; pour cela, il faut piquer au point "centre de la douleur" et en principe laisser l'aiguille assez longtemps. Si la douleur est diffuse en nappe faire l'encerclement de la zone douloureuse en la jalonnant avec des aiguilles distantes de 3 à 5 cm.

Trismus

Afin de ne pas rendre cet exposé trop fastidieux, bornons-nous à ne citer que les points les plus importants qui sont conseillés d'après les différents auteurs: Goux, de Lafuy, Vacelet, Mauries.

1. Ro-Kou—4e point du gros intestin, point source et entrée de l'énergie, face dorsale de la main, dans l'angle formé par les 1e et 2e métacarpiens.

2. El Menn—23e point du triple réchauffeur devant l'oreille, dans le creux qui sépare le tragus de l'antitragus.

3. Tsia Tchre — 3e point de l'estomac sur la face à l'intérieur de l'angle du maxillaire inférieur.

4. Iang-Ling-Tsiuann, face externe de la jambe, sur le col du péroné contre et en avant de l'os. Point que j'ai utilisé personnellement dans de nombreux cas avec succès.

Tous ces points doivent être piqués à l'argent.

Gingivites, Stomatites

La base du traitement est le rétablissement de l'équilibre et de l'énergie (Vacelet). Un certain nombre de points de brindille nous permettent cependant d'agir.

1. Point principal: Sann Li — 10e point du gros intestin, à piquer à l'or. Localisation: bord externe de l'avant-bras, 3 tra-

vers de doigt au-dessous de l'extrémité externe du pli du coude. En outre, associer toujours Chang-Iang, premier point du gros intestin, face dorsale de l'index, deux millimètres environ au-dessus et en dehors de l'angle unguéal externe, à piquer à l'argent.

2. Poumon — Chao-Chang, face dorsale du pouce, deux millimètres environ au-dessus et en dedans de l'angle unguéal interne, à piquer à l'argent.

Abcès

24e point du vaisseau de la conception, Tchreng-Tsiang, sur le bord supérieur de la fossette du menton, à piquer à l'argent.

Chenmo, 62e point de la vessie, sur le bord inféro-externe du calcanéum sous la malléole externe.

Ce point s'avère extrêmement important. Il permet des résultats spectaculaires et quasi instantanés et semble stimuler les défenses de l'organisme pendant un temps assez long.

Algie Dentaire (pulpite)

Faire toujours les points suivants: (1) gros intestin, (2) gros intestin, (3) poumon.

PUNCTOMÈTRE

L'acupuncture est un agent physique d'un appoint extraordinaire dans la thérapeutique de nombreuses affections.

Le punctomètre se révèle l'instrument indispensable au praticien par sa détection extrêmement précise.

Le manche d'exploration permet, grâce au circuit de galvanopuncture, de pratiquer dans des cas bien déterminés: (arthroses, entorses contractures, lombalgies, douleurs cervo-brachiales, trachéites, genoux lipomateux, rhinopharyngites, épicondylites, Dupuytren, péri-arthrite SH) la moxation sans aiguilles, par simple pédale.

En ligne générale, le repérage exact des points à traiter permet, en acupuncture courante, la pose sans erreur des aiguilles avec une précision totale.

FIGURE 3 Punctomètre.

La surface des points étant voisine du millimètre carré, l'action des aiguilles n'est valable que si les points à influencer bénéficient de cette précision.

En plus, la situation topographique de ces points varie légèrement d'un sujet à l'autre, selon le type bréviligne ou longiligne, sujet gras, sujet maigre.

L'usage du punctomètre en pratique courante permet au praticien: (1) d'avoir la certitude absolue d'agir sur les points électivement déterminés; (2) de sélectionner les points principaux et de diminuer le nombre d'aiguilles à appliquer; (3) d'obtenir la constance et la rapidité des résultats. En service journalier, le punctomètre permet, par sa robustesse et sa simplicité de manœuvre (une manette de réglage), un gain appréciable de temps.

L'appareil est ajustable de 110 à 245 volts alternatifs par mise en place correspondante au secteur d'alimentation du cavalier du transformateur. (Figure 3).

Le panneau de commande comporte: (1) un galvanomètre à cadran carré, gra-

dué de zéro à cent comportant une région Seuil (50-70) et une région Point (90-100); (2) un cadran démultiplié de réglage de Seuil, gradué de zéro à cent; (3) un petit cadran de réglage de galvanopuncture, gradué de zéro à vingt; (4) un bouton poussoir noir et blanc et un bouton flèche noir (vérification et ajustage au secteur); (5) un interrupteur arrêt-marche et une lampe témoin de marche (voyant vert); (6) les prises d'alimentation secteur, de poignée, de manche de recherche et de pédale. Ces prises sont toutes différentes et ne peuvent être confondues.

Principe de base: L'écran de peau est sillonné par des lignes de plus grande conductibilité (méridiens chinois). Sur ces lignes existent des Points d'émergence encore plus conducteurs que les méridiens (points chinois). La largeur apparente des méridiens est de deux à trois millimètres (plus profonds que les points). La surface des points en projection sur l'écran de peau est de 1 millimètre carré. La détection si précise du punctomètre est basée sur cette plus grande conductibilité des méridiens et des points comparée aux régions avoisinantes. D'un sujet à l'autre, indifféremment à l'âge, à la race ou au sexe, la conductibilité de l'écran de peau peut varier dans les conditions d'examen du Punctomètre (recherche à la pointe mousse mèche alcoolisée de 30,000 à 150,000 ohms). Pour permettre la détection, une seule manette, le réglage de Seuil, qui permet d'ajuster la détection à la peau du patient.

Principe du Seuil: Le Seuil est le réglage de détection du punctomètre. Il correspond à la mesure de la conductibilité minimum du sujet. Il doit donc se régler dans une région neutre, sans points, ni méridiens. Nous la situons, cette région, sur la face interne de la cuisse au-dessus du genou. (Voir les planches jointes de l'appareil).

Instructions de mise en service: L'appareil étant en ordre de marche, c'est-à-dire alimentation secteur convenable, connecter le cordon d'alimentation, la poignée indifférente, le manche détecteur et la pédale. (1) Abaisser l'interrupteur Arrêt-Marche (le voyant vert doit s'allumer). (2) Attendre une dizaine de secondes pour que la valve prenne son régime. (3) Amener le cadran Seuil sur la graduation 100; vérifier en appuyant sur le poussoir noir et blanc que le galvanomètre dévie lui aussi jusqu'à la graduation 100. En cas de déviation galvanométrique, en deçà ou au-delà du repère 100, corriger avec le bouton flèche noir. (Cette manœuvre est à faire seulement en cas d'installation ou de déplacement de l'appareil, et, de temps en temps, si l'on soupçonne une alimentation secteur variable). Cette vérification effectuée, ramener le cadran Seuil au zéro.

Repérage millimatrique: Faire tenir au patient l'électrode poignée dans l'une ou l'autre main. Tremper le manche de détection dans la cupule contenant de l'alcool médical. Procéder au réglage de Seuil.

Réglage de Seuil: Le patient tenant l'électrode en main, amener, dans la région face interne de la cuisse signalée plus haut, la pointe chercheuse. Exercer une pression moyenne et amener par le réglage de la manette Seuil, en partant de zéro vers le maximum, l'aiguille du galvanomètre au repère S du cadran graduation galvanométrique 50. L'appareil est alors au réglage de détection. On remarquera que le passage de la pointe chercheuse sur un méridien provoque une lancée balistique de l'aiguille du galvanomètre, (graduation 90). Le passage sur le point lui-même provoque la lancée maximum et l'allumage de la lampe de manche. Ce repérage millimétrique permet la pose des aiguilles avec une précision totale. La galvanopuncture s'applique en cas d'utilisation sur le point repéré, par adjonction de la bague galvanopuncture, pression dure, réglage du voltage G.P. et coup de pédale temporisé, sans aiguille évidemment.

Recommandations importantes.—(1) Ne jamais mettre en court-circuit poignée et pointe chercheuse (détérioration possible du galvanomètre). (2) Pour la recherche et la galvanopuncture, tremper souvent

l'extrémité du manche dans la cupule alcool médical. (3) Le Seuil de face est sensiblement moitié du Seuil général: les couches de peau faciale étant plus fines.

$$\text{Seuil de face} = \frac{\text{Seuil général}}{2}$$

(4) Dans le repérage, il faut éviter d'appuyer fort sur la pointe chercheuse; celle-ci cause alors une douleur et trouble la détection en créant des zones plus conductibles.

Conclusion

Nous venons de citer dans cet exposé d'initiation quelques points de brindille utilisables dans chaque cas. Nous souhaitons qu'ils vous servent en pratique courante et vous incitent à approfondir cette médecine, la plus vieille du monde. L'acupuncture doit, comme le dit si justement Vacelet, occuper une place logique et solide à côté des autres techniques qu'elle n'exclut, mais bien au contraire, qu'elle facilite et complète.

Summary

Acupuncture—puncture of the skin or tissue by one or more needles, practised for the relief of pain (counter-irritation), for the withdrawal of tissue fluid, or to effect coagulation of blood in an aneurysm—is an old Chinese method used for diagnostic, therapeutic and prophylactic purposes. The principles on which acupuncture is based are not clearly understood.

Needles of different metals are used according to the intended purpose: silver (sedation), gold (stimulation), steel (neutral).

The author reports cases of tic douloureux, pericoronitis, gingivitis, post-operative pain and trismus which responded well to acupuncture.

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correspondance

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

EMPLOI DES SANGSUES EN CHIRURGIE DENTAIRE

M. le rédacteur:

Puis-je compter sur votre bienveillante coopération en vous demandant de publier cette note dans le Journal. Afin d'améliorer l'enseignement de l'histoire de la chirurgie dentaire, j'aimerais bien recevoir des renseignements de la part des confrères qui posséderaient certaines connaissances sur l'emploi de sangsues, dans le passé, en rapport avec n'importe quels traitements dentaires. J'aimerais bien savoir où et comment ces traitements furent administrés. Si des photographies étaient disponibles, je demanderais la permission de les reproduire et je m'engage à les retourner immédiatement. Toute communication utilisée sera classée et le mérite attribué au contributeur.

Marcel Hébert, D.D.S.,
Chargé de cours en Histoire de chirurgie dentaire,
Université McGill
Montréal, P. Qué.

page éditoriale

Sainte Apolline, notre patronne

Le mois de février nous ramène, chaque année, la fête commémorative dédiée à la patronne des dentistes, sainte Apolline.

Il vaut peut-être la peine de profiter de cette occasion pour réfléchir un peu, à la lumière de quelques notes historiques, sur la vie et le martyre de notre patronne.

C'était sous le règne de l'empereur Philippe l'Arabe, reconnu comme un fervent des persécutions contre les chrétiens. Sans même aucune raison, parfois, les édits de l'empereur se suivaient à intervalles assez rapprochés pour ordonner des persécutions de chrétiens.

Le martyre de sainte Apolline survint au milieu de ces persécutions répétées, mais dans des circonstances un peu spéciales. A Alexandrie, où notre patronne passa toute sa vie, un magicien, ennemi des chrétiens, sollicita ses "esprits de ténèbres" et usa de sa très forte influence sur le peuple pour l'inciter à soutenir le paganisme et par conséquent à persécuter les chrétiens. Ses discours enflammèrent tellement ces gens idolâtres, déjà disposés à la révolte, qu'ils pillèrent et ravagèrent "tout ce qu'il y avait de beau et de sacré, dans les maisons des chrétiens, brûlèrent le reste et massacrèrent autant de fidèles qu'ils en purent rencontrer." De sorte que presque tous les chrétiens durent quitter la ville pour sauvegarder leur foi au prix de leurs biens temporels.

Sainte Apolline y demeura constamment, prête au martyre, malgré son âge avancé. "Les païens, s'étant saisi de sa personne, lui donnèrent d'abord tant de coups sur le visage et sur les joues, qu'ils lui brisèrent les mâchoires; et, non contents de cette cruauté, ils lui arrachèrent toutes les dents l'une après l'autre; et de là vient qu'elle est invoquée particulièrement par les personnes qui ont mal aux dents et aux gencives." Puis elle fut brûlée vive dans un feu où elle s'élança avec une foi dont l'ardeur en convertit plusieurs, semble-t-il. C'était le 9 février de l'an 249 A.D.

La réflexion qu'on peut faire à la suite de ce récit ne peut-elle pas porter sur les "petits martyrs" qui se présentent parfois sur nos fauteuils.

Nous arrive-t-il jamais, devant l'affluence de patients et la rapidité de l'horloge, de négliger de faire une anesthésie pour un travail qui nous semble court et facile; ou de nous fier à l'efficacité d'une "épine de Spyx" partiellement réussie; ou d'enlever une dent temporaire un peu mobile à un petit enfant sans prendre le temps et la précaution de lui éviter toute douleur.

Si tant de personnes ont cette hantise reconnue du dentiste, n'est-ce pas parce que trop souvent nous ne profitons pas adéquatement de ce bienfait de la science, qu'est l'anesthésie. "Ne fais pas aux autres . . ." on connaît cette recommandation qui parle d'elle-même.

Voudrait-on offrir la canonisation à certaines personnes, elles seraient sans doute prêtes à l'accepter et à la mériter n'importe où, mais pas sur la chaise du dentiste.

C.T.

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Prevalence of opacities and hypoplasias of nonfluoride origin in permanent teeth of children

Alan S. Gray, D.D.S., D.D.P.H., Prince George, British Columbia*

Developmental defects of enamel which could be considered as "stains" have often been observed in a moderately large portion of the child population. Such studies have reported the prevalence of opacities and hypoplasias of enamel in different geographical locations.[1-5]

Many persons who oppose fluoridation express anxiety that "staining" or disfigurement of the teeth will result. Therefore it is important to appreciate that in communities not benefiting from water fluoridation a significant percentage of the children show evidence of enamel opacities and hypoplasias. Furthermore, in order to rebut any allegation that staining is a postfluoridation effect, it seems evident that a study would be desirable to establish prevalence rates of enamel opacities and hypoplasias before fluoridation is commenced.

Fort St. John, British Columbia, successfully passed a referendum on fluoridation in December 1962. Before fluoridation began a study was carried out to determine the prevalence of dental caries

*Regional dental consultant, Northern Health Units, British Columbia Health Branch.

TABLE 1 Comparison of number of opacities between sexes.

	Total	Boys	Girls
Number examined	241	137	104
Number with hypoplasias	33	19	14
Percentage involved	13.7%	13.9%	13.5%

and the prevalence of nonfluoride opacities and hypoplasias of all the 6-14-year-old locally born and raised children of the community. The children were examined with a mirror and explorer under a good artificial light. Each child's name, sex, teeth involved, and surfaces involved were noted. If the opacity or hypoplasia was white in appearance it was classified as "mild," if brown or black in appearance it was classified as "severe." No attempt was made to discover the cause of the opacity or hypoplasia. However, waterborne fluorides were eliminated as a causative factor since the Fort St. John water supply has always been assessed as "nil" fluoride content.

Results

Of the 241 children aged 6-14 years, born and raised in Fort St. John, 33 or 13.7 per cent showed evidence of opacities or hypoplasias in their permanent teeth. There appeared to be no difference in prevalence between the two sexes (Table 1). The 33 children had a total of 61 teeth involved and 115 surfaces or 1.9 surfaces per tooth.

TABLE 2 Position and severity of opacities and hypoplasias.

Area	Number of teeth affected	Type of lesion	
		Mild	Severe
Anterior	41	28	13
Posterior	20	1	19
Total	61	29	32

Severity of lesions

Mild lesions were present in 18 of the children, while 15 children showed severe lesions.

It is interesting to note that all but one of the lesions in the posterior region were of the severe type. In the anterior region the 13 severe lesions (Table 2) were distributed as follows: lower central incisor—7; lower lateral incisor—4; lower cuspid incisor—1; upper central incisor—1.

All except one of the severe anterior lesions were located on the lower teeth (Table 2).

The anterior teeth accounted for 45 surfaces or 39.2 per cent of the affected surfaces. The labial surfaces of the upper and lower central incisors were the areas most often affected. The upper lateral was the incisor least often affected (Table 3).

The posterior teeth accounted for 70 surfaces or 60.8 per cent of the affected surfaces. These surfaces were fairly evenly distributed between the upper and lower bicuspid and molar teeth (Table 3).

Other investigators have found the prevalence of nonfluoride hypoplasias and opacities to range from 5 to 30 per cent.

Conclusions

This and other studies have shown that the prevalence of enamel opacities and hypoplasias in a group of children raised on a low fluoride intake is significantly high.[1-5]

It is possible that after several years of fluoridation these lesions could mistakenly be attributed to the increased fluoride intake and recorded as dental fluorosis.

In order to prevent this error the prevalence of nonfluoride opacities and hypoplasias should be well known by the profession for different geographical regions, especially in advance of new fluoridation programs.

Further studies should be made in newly fluoridated communities, after the base

TABLE 3 Distribution of opacities and hypoplasias.

Tooth	Number of teeth affected	Number of permanent tooth surfaces affected					Total	Per cent of total surfaces affected
		Incisal	Lingual	Labial	Mesial	Distal		
Upper central incisor	16	4	0	16	0	0	20	17.4
Upper lateral incisor	3	0	0	3	—	—	3	2.6
Upper cuspid	—	—	—	—	—	—	—	—
Lower central incisor	12	—	—	12	—	—	12	10.4
Lower lateral incisor	8	—	—	8	—	—	8	7.0
Lower cuspid	2	—	—	2	—	—	2	1.8
Total anterior	41	4	—	41	—	—	45	39.2
		Occlusal	Lingual	Buccal	Mesial	Distal		
Upper first bicuspid	3	3	2	3	2	2	12	10.4
Upper second bicuspid	4	3	2	4	2	2	13	11.3
Upper first molar	4	4	2	2	2	2	12	10.4
Upper second molar	—	—	—	—	—	—	—	—
Lower first bicuspid	2	2	2	2	2	2	10	8.7
Lower second bicuspid	2	2	2	2	2	2	10	8.7
Lower first molar	5	3	2	4	2	2	13	11.3
Lower second molar	—	—	—	—	—	—	—	—
Total posterior	20	17	12	17	12	12	70	60.8
Total anterior and posterior	61						115	100.00

line data on nonfluoride opacities and hypoplasias have been accumulated, to investigate whether under optimal fluoride intake the prevalence of disfiguring abnormalities of the teeth will increase or decrease.

Résumé

Les recherches et l'enquête actuelle ont montré que l'émail des dents d'enfants qui n'ont consommé que peu de fluor a considérablement plus de tendance à renfermer des zones d'opacité et de dysplasie.

Il est possible qu'après quelques années de consommation de fluor, on attribue à tort ces lésions à l'augmentation du fluor dans l'alimentation et qu'on les méprenne pour des lésions de fluorose.

La profession, pour prévenir ces erreurs, devrait se renseigner sur la prévalence des lésions d'opacité et de dysplasie dans les régions où on se propose d'utiliser la fluoration.

Il serait bon que les dentistes entreprennent des relevés dans les régions où on vient d'installer la fluoration et, après qu'ils auront noté ces défauts d'émail avant l'adoption de cette mesure, pour se rendre compte si, avec une consommation idéale de fluor, ces taches d'émail ont tendance à augmenter ou diminuer.

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1461 - 6th Avenue

Counteracting the acidity of silicate cement

G. H. Sperber, B.Sc., B.D.S., M.S.,*
Edmonton, Alberta

The acidity associated with one of the most widely used restorative materials in dentistry, viz., silicate cement, has long been recognized and verified by experimental investigation.[1–4] That this acidity is a possible cause of irritation to the pulp has been demonstrated by a number of authors.[5–8] If the acid effects of silicate cements could be counteracted on the surface in contact with dental tissues, the possibility of irritation to the pulp would be eliminated.

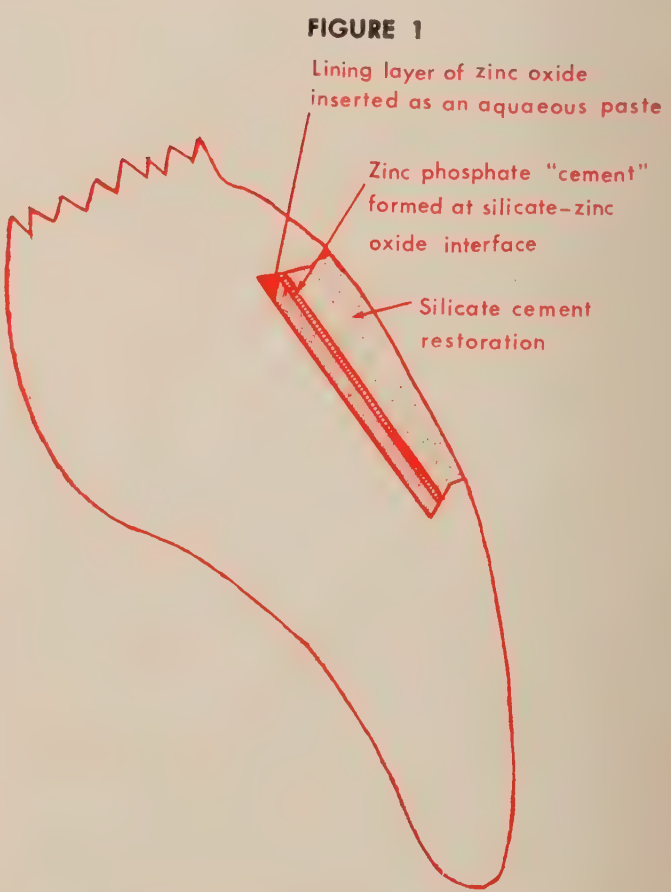
A method for neutralizing the free surface acid of an ordinarily mixed silicate cement is described here. The procedure evolved does not in any way alter the composition or mixing techniques of the currently popular cements. Further, the additional advantage of providing a ready-made zinc phosphate cement lining is incorporated in the procedure.

Zinc phosphate cement, widely used as a cavity lining and luting material, is less often incriminated as a pulp irritant than silicate cement. Yet zinc phosphate cement has also been shown to have an injurious effect upon the pulp,[7,9] although apparently less than that incurred with silicate cement.[8,10] This variation in degree of injury to the pulp might be attributed to the differences in the physicochemical reactions between the liquid portions of the cements and their respective powders.

The powder of commercial zinc phosphate cement is preponderantly zinc oxide, which constitutes between 75 and 100 per cent by weight of the material, depending upon the brand.[11] The powders of silicate cements are finely ground ceramic compositions that are essentially acid-soluble glasses.[11] While the powder fractions of zinc phosphate and silicate cements differ considerably, the liquid portions of these cements are essentially identical. The composition of these liquids is water, phosphoric acid and small quantities of the phosphates of certain metals. Silicate cement liquid differs from the liquid of zinc phosphate cement only in minor variations of zinc and magnesium phosphate components and water content.[11]

While there is a similarity in the chemical nature of the liquids, although one is a little more concentrated than the other,

FIGURE 1



*Assistant professor of dentistry, Faculty of Dentistry, University of Alberta, Edmonton.

the differences in the powder fractions of the two cements determine their different setting behaviours and, in turn, the nature of the set products. Silicate cement's ceramic powder combines with its liquid, composed largely of phosphoric acid, to form a silicic acid gel which, by its heterogeneous nature, prevents complete interaction of the powder and liquid. On the other hand, the setting reaction of zinc phosphate cement produces a homogeneous crystalline product (tertiary zinc phosphate) which allows the powder (predominantly zinc oxide) and liquid (phosphoric acid) to interact with each other more completely. This results in less of the phosphoric acid remaining unincorporated in the case of zinc phosphate cement than in the case of silicate cement. It has been demonstrated that it is the free phosphoric acid of these cements, rather than their powders, that is injurious to the pulp.[12,13] The greater quantity of free phosphoric acid in the set silicate cement, when compared with set zinc phosphate cement, would account for the silicate's greater pathogenic effect.

The excess liquid (i.e. phosphoric acid) of a normally mixed silicate cement tends to accumulate on the surface of the set product. In this situation the free acid is most harmful. If this surface acid of a set silicate cement is allowed to act on a sufficient quantity of zinc oxide, all the free surface acid will be utilized in forming a type of zinc phosphate cement very similar to the commercial preparations. Thereby, the acidic source of irritation to the dental pulp will be removed.

The pulp of a tooth restored with silicate cement is commonly protected by a lining material. The lining should act as a mechanical barrier to injury by preventing the penetration of toxic substances. It will additionally insulate the pulp against rapid thermal changes. Commercial zinc phosphate cement is frequently used in this role, yet is itself harmful to the pulp in deep cavities. A sufficiently thick lining of a paste of pure zinc oxide can act as a mechanical barrier and thermal insulator, and can also chemically interact with the potentially harmful phosphoric acid of silicate cement to form a hard, resistant material. Silicate cement inserted into a cavity lined by such a paste of pure zinc oxide (not the zinc oxide-rosin mixture of most commercial zinc oxide-eugenol cements), and distilled water, will form a zinc phosphate cement at the silicate-zinc oxide interface.

In addition to zinc oxide, consideration should also be given to calcium hydroxide as a "cement powder," since it is often used as a lining material in pulp-capping procedures.[14,15]

Experiments were accordingly conducted to evaluate zinc oxide and calcium hydroxide as cement powders when combined with the free surface acid of silicate cement. The degrees of acidity or alkalinity of these materials in the combinations suggested above were evaluated. The pH values of the uncombined cements were similarly determined as a basis for comparison.

Experimental methods

Zinc oxide and calcium hydroxide pastes were prepared respectively by mixing the powders (pharmaceutical grades) with distilled water on separate glass slabs. Widely used commercial silicate and zinc phosphate cements were mixed by conventional procedures to the consistency that would normally be used for insertion into a tooth cavity. The mass of silicate cement was divided into nine equal portions to form identically sized pellets. Three of these silicate cement pellets were placed on the zinc oxide paste and pressed down firmly to gain good contact, while a further three pellets were similarly placed and pressed on the calcium hydroxide paste. The last three silicate cement pellets were pressed onto a clean glass slab. The zinc phosphate cement, included in the experiment as a "control" only, was divided into three equal portions.

All the pellets were allowed to set for ten minutes, with six of the silicate cement pellets being in contact with either the zinc oxide or calcium hydroxide pastes for this period.

To determine the approximate pH values of these various pellets three filter papers were impregnated with freshly prepared colorimetric indicators capable of recording the acid, neutral and alkaline ranges of the pH scale. These were bromophenol blue (pH range 2.8-4.6), phenol red (pH range 6.4-8.2) and thymol blue with an acid range (pH 1.2-2.8) and an alkaline range (pH 8.0-9.6). The set cement pellets were distributed among the indicator filter papers so that there was a zinc oxide-silicate pellet, a calcium hydroxide-silicate pellet, and plain silicate and zinc phosphate cement pellets on each of the filter papers. All the pellets were pressed down on each indicator paper for a few seconds to allow colour changes, if any, to take place (Table 1).

The plain silicate cement pellets produced marked acid colour changes with all three indicators. The acid colour reaction with bromophenol blue indicated a pH of 2.8 or below, and the acid colour reaction with thymol blue indicated a pH of 1.2 or below. The silicate cement pellets pressed onto the calcium hydroxide paste produced marked alkaline reactions with the pH indicators, and in the case of thymol blue expressed a pH above 9.6. The silicate cement pellets which had been pressed onto the zinc oxide paste produced an alkaline reaction with bromophenol blue, indicating a pH above 4.6, and an intermediate range reaction with thymol blue, indicating a pH between 2.8 and 8.0. The neutral reaction of the zinc oxide-silicate pellet with phenol red indicated a pH between 6.4 and 8.2. The plain zinc phosphate cement pellets produced a neutral reaction with bromophenol blue, indicating a pH between 2.8 and 4.6; an acid colour reaction with phenol red, indicating a pH below 6.4; and a neutral orange (acid range) with thymol blue, indicating a pH between 1.2 and 2.8.

The nature of the silicate cement surface exposed to the zinc oxide paste was hard and smooth, while that exposed to the calcium hydroxide paste was soft and friable. Confirmatory evidence of the superiority of the zinc phosphate "cement" to the calcium phosphate "cement" was obtained by mixing silicate cement liquid (phosphoric acid) with zinc oxide and calcium hydroxide powders respectively. The zinc oxide-phosphoric acid combination formed a hard mass, while the combination of calcium hydroxide with phosphoric acid resulted in a crumbly mixture.

Discussion and conclusions

The pH tests on the plain commercial silicate and zinc phosphate cements agree with previous determinations of their acid

TABLE 1 Reactions of cements and test reagents with acid-base indicators

Cements and reagents	Indicators		
	Bromophenol blue pH 2.8–4.6	Phenol red pH 6.4–8.2	Thymol blue acid range pH 1.2–2.8 alkaline range pH 8.0–9.6
Silicate cement	Bright yellow (acid) pH below 2.8	Yellow (acid) pH below 6.4	Red (acid) pH below 1.2
Zinc phosphate cement	Blue (neutral) pH 2.8–4.6	Yellow (acid) pH below 6.4	Orange (neutral in acid range) pH 1.2–2.8
Silicate cement + calcium hydroxide (calcium phosphate "cement")	Violet (alkaline) pH above 4.6	Red (alkaline) pH above 8.2	Blue (alkaline) pH above 9.6
Silicate cement + zinc oxide (zinc phosphate "cement")	Violet (alkaline) pH above 4.6	Orange (neutral) pH 6.4–8.2	Yellow (interval between acid and alkaline ranges) pH 2.8–8.0

nature.[3,9] The potentially injurious character of this acidity to the dental pulp has been previously discussed.

The combination of therapeutic reagents with silicate cement to produce a lining material of an inert nature was attempted. The combination of silicate cement with calcium hydroxide produced a strongly alkaline lining material of poor physical consistency. The calcium phosphate "cement" resulting from the interaction of calcium hydroxide and phosphoric acid liquid was a friable mass, not forming a hard continuous surface. This lining would prove to be a poor mechanical barrier to injurious materials. Furthermore, the highly alkaline nature of aqueous calcium hydroxide paste would not be as palliative upon dentine or the delicate pulp tissues as would a neutral reagent. However, Barber and Massler[16] observed, "These (calcium hydroxide) liners have been shown to be very effective in minimizing pulpal damage from the silicate acid caused by the low pH of the silicate cement restorations."

The combination of silicate cement with a zinc oxide aqueous paste produced a hard zinc phosphate "cement" lining at the silicate-zinc oxide interface as a result of the reaction of the surface phosphoric acid of the silicate with zinc oxide (Figure 1). The remaining zinc oxide beneath the zinc phosphate "cement" would be in contact with the dental tissues, and because of its neutral nature, would provide a demulcent lining. This double-layered lining would obviate the deleterious effects that the conventional zinc phosphate cement lining has upon the dental pulp.

From the foregoing evidence, it is suggested that cavities to be restored with silicate cements be lined with a zinc oxide aqueous paste. The paste should preferably be dried after its insertion into the cavity. The resulting layer of dry powder can better resist displacement when the silicate cement is inserted than would a soft, wet paste. Furthermore, drying the paste prevents aqueous contamination of the deep surface of the silicate cement.

These recommended procedures would result in the following benefits:—

1. Effective neutralization of free surface acid of silicate cement, thereby removing a possible source of damage to the dental tissues.

2. The provision of a demulcent lining material of zinc oxide with one surface in contact with the dental tissues, while the other interface will react to form a hard, mechanically and chemically protective lining.

3. The saving of time and material in mixing and inserting a separate zinc phosphate cement lining.

4. The use of materials and methods already utilized in daily routine practice.

Résumé

Les cavités destinées à recevoir des silicates devraient être enduites d'une pâte aqueuse d'oxyde de zinc. Cette pâte devrait être séchée avant de la déposer dans la cavité. Cette couche protectrice neutralise l'acide libéré par les silicates et prévient l'inflammation de la pulpe. L'oxyde de zinc, quand il est en contact avec les cellules dentinaires, détermine sur elles une action émolliente. La réaction chimique qui s'opère entre cette couche d'oxyde de zinc et le silicate produit une couche de ciment de phosphate dure qui protège mécaniquement et chimiquement la pulpe. Cette façon de faire épargne du temps et du matériel, car, alors, il n'est pas nécessaire de préparer et d'insérer exprès une couche de ciment de phosphate de zinc.

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3039 Medical Sciences Building,
University of Alberta

Distribution of opinions on fluoridation in Edmonton

D. G. Fish, M.A. and*
G. K. Hirabayashi,† Ph.D.,
Edmonton, Alberta

The disposition of any fluoridation plebiscite is decided by the number of votes cast for and against the issue, the result representing the net consensus of the community or city. It is important to remember, however, that such a consensus is not necessarily representative of the total distribution of opinions in the population from which the voters are drawn. Where the voting turnout is high and the margin of victory a large one, the outcome of the plebiscite is unlikely to be different from that which would have occurred if the entire voting population had cast their vote. But if the voting turnout is low, as in the case of Edmonton, Alberta, civic elections (where it has ranged from 17-35 per cent in recent years), and where the plebiscite fails by relatively small margins such as 2 or 3 per cent, it is appropriate to enquire whether the plebiscite reflects the true distribution of opinions in the voting population.

The literature reveals a number of public opinion polls on the issue which suggest that a much smaller percentage of the population is opposed to fluoridation than might be inferred from the many unsuccessful plebiscites that have been held throughout North America. One national poll, for example, reported that 53 per cent of the sample were in favour of fluoridation compared to 18 per cent against, with nearly 30 per cent not knowing the direction of their opinion.[1] In the fall of 1959, the National Opinion Research Center, Chicago, using a nationwide sample, found that 65 per cent of the re-

*Ph.D. candidate in sociology, London School of Economics.
†Associate professor of sociology, University of Alberta.
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spondents were in favour of the issue, 12 per cent were indifferent or undecided and 23 per cent against.[2]

It appears further that opinions on fluoridation are not distributed randomly in the population but that, in fact, certain social or demographic characteristics distinguish those for, against, and indifferent to the issue. The Mausners, for example, report that higher education and the number of children under 12 were associated with a pro-fluoridation opinion, while a low income, middle and lower class occupations and the older age groups appeared to typify the anti-fluoridationists.[3] The cogency of age as a factor in opinions on fluoridation was well shown in one of the earlier Edmonton studies comparing opinions and knowledge of fluoridation of a sample of young parents with those of a sample of older people over the age of 65. Although knowledge about fluoridation was the same for both groups, the expression of "anti" feelings was considerably higher in the older people. Much evidence as to the distribution of opinions on fluoridation by various social characteristics has been gathered and the reports have been summarized in a number of places. In evaluating this information, however, the comments of the Harvard School of Public Health group are of relevance:[4]

> A good deal is now known about the social characteristics of people who vote for and against fluoridation. Unfortunately, what originally seems like a clear-cut relationship has on further study frequently appeared more complicated . . . results have sufficient divergencies to suggest that subpopulations among both proponents and opponents of fluoridation must be differentiated.

The divergencies mentioned in this article occur with a number of social characteristics: thus, in Fairfield, California, white collar respondents were the least favourable toward fluoridation of all occupational groupings and the 41-50 age group was the least favourable of any age group. In Cambridge, Massachusetts, those with less than eighth grade education and those with college education were most in favour of fluoridation, but those with "medium" education were not so likely to be in favour. Opinions were also not distributed linearly according to age.

This variety of findings could be accounted for by many factors among which might be listed cultural differences, variations in the conduct of campaigns, differences in measurement and interviewing technique, sampling errors and a number of local factors such as water supply, community leaders, and so on. It therefore seems axiomatic that any one community involved in fluoridation campaigns might well look at the distribution of opinions in its population, especially in terms of directing propaganda in the most fruitful direction.

Taking into account the previously reported research and the local situation in Edmonton the following predictions were made:

1. If the stereotype of men as the decision and policy makers of society holds good, men would be more likely to report definite opinions on fluoridation than women. That is, women will display a higher proportion of "indifferent or undecided" responses. There appears, however, no reason to suppose that a sex differential should exist in the direction of the vote and in the distribution of "for" and "against" opinions.

2. The relevance of the issue to younger groups suggested that younger people will be more likely to be in favour of fluoridation, although older people may be more likely to have definitive opinions on the issue.

3. If the relevance of an issue to a particular social group has validity in the explanation of regularities in voting behaviour, then parents of children under 12 will be more likely to be in favour of the issue and to have definitive opinions in the issue.

4. The greater access to information of the well-educated may make for more definitive opinions in this group, as well as to make them more likely to be in favour of fluoridation since they are more likely to read, accept and identify

with the rational, pragmatic and prosaic type of evidence presented by the pro-fluoridation groups. The lesser educated, on the other hand, are more likely to be affected by the emotional appeals of the anti-fluoridationist.

5. While it seemed likely on a rational basis that those who could least afford dentists' bills would be more likely to be in favour of fluoridation, the upper socio-economic levels, well able to afford dentists' bills, might, in the face of controversy, simply avoid the issue altogether. Previous studies suggest, however, that the reverse is actually the case and that the higher the income and occupational level, the more likely the individual is to be in favour of fluoridation.

6. In view of the inferred stability of residence, property owners were predicted to be more concerned with the issue and hence to be more likely to hold definitive opinions on fluoridation. There seemed no reason for predicting that there would be any difference between property owners and non-property owners in terms of the direction of their opinion.

Method

For the purposes of this study the individual's opinion on fluoridation was defined by his response to the question, "How do you feel about fluoridation?", the respondent being required to indicate his response on a seven point scale with "one" representing "definitely for" and "seven" "definitely against." The scale then measured two dimensions: direction of opinion and strength of conviction. The middle category, "four," represented two aspects of a neutral position on fluoridation. First, it typified the individual who was completely indifferent to the issue and hence might be said to have no opinion at all, and on the other hand, it represented the individual who had weighed the matter with some care and had concluded that in the face of controversial evidence he would not commit himself one way or the other. In this respect, then, the middle point of the scale was ambiguous and while for the purposes of development of hypotheses and analysis of the data the category has included both aspects under the title of "indifferent and undecided," it is recognized that, strictly speaking, these two aspects are not comparable. The sample and survey method were previously described,[5] in the article entitled "A study of interest in fluoridation" which appeared in the January issue of the *Journal of the Canadian Dental Association.*

For the purposes of analysis, this seven point scale was abbreviated to a three point scale, responses "one" and "two" forming a category of "definitely for," responses "three, four and five" forming a category of "indifferent or undecided" and "six and seven" representing "definitely against." The justification of this method has already been discussed under the measure of interest, but it should be noted that in the case of the opinion on fluoridation, the subsuming of responses of "five" and "three" under a middle category involves the transformation of opinion direction into a non-directional category. The uncertainty that is implied in these responses with respect to direction probably justified their inclusion with the "indifferent and undecided."

Results

The total distribution of opinions on fluoridation in Edmonton represented a somewhat discouraging picture to those

TABLE 1 Percentage distribution of opinions on fluoridation according to sex.*

Opinion of fluoridation	Male	Female
Definitely for	47	47
Indifferent or undecided	36	36
Definitely against	17	17
Total	100	100
(N)†	(185)	(169)

*All percentages are rounded to the nearest per cent.

† The number of cases within a dependent variable does not always add to the full total of the sample of 356 because of the omission of those respondents who did not fall into the categories represented or from whom the relevant information was not obtained.

Table 2 Percentage distribution of opinions on fluoridation according to selected categories of age.*

Opinion on fluoridation	Age in years					
	21–30	31–40	41–50	51–60	61–70	71+
Definitely for	55	60	48	31	34	30
Indifferent or undecided	32	31	42	43	41	30
Definitely against	12	9	10	26	25	41
Total	99	100	100	100	100	101
(N)†	(74)	(100)	(59)	(51)	(32)	(37)

*See Table 1.
†See Table 1.

concerned with ensuring a favourable public climate for the presentation of the issue in plebiscite form. Forty-seven per cent of the sample professed to be definitely in favour of the issue, 17 per cent definitely opposed and 37 per cent indifferent or undecided. It is obvious that the outcome of a plebiscite in Edmonton rests very much in the hands of those who are "indifferent or undecided," especially while the requisite majority required is 66 2/3 per cent.

Sex. — From Table 1 it will be seen that equal percentages of men and women recorded indifferent or undecided responses to the question "how do you feel about fluoridation?" In addition equal percentages of men and women were opposed to the issue.

Age. — As shown in Table 2, the percentage of people in favour of fluoridation decreases from 55 per cent in the age category 30-39 to 30 per cent in the over 70 group. This distribution is statistically significant. It is noteworthy, however, that the six age categories used in the analysis dichotomize "over fifties" and "under fifties" according to direction of opinions on fluoridation. The categories in the latter group are all approximately 50 per cent and over in favour of fluoridation while the categories in the former group are all just over 30 per cent in favour. The age of 50, then, appears to be a convenient dividing line between the high probability of a "pro" opinion and the high probability of an "anti" opinion.

Age of Children. — A slight but not significant tendency toward families with younger children holding the more firm opinions on fluoridation is shown in Table 3. Fifty-six per cent of the respondents with children over the age of 18 report

TABLE 3 Percentage distribution of opinions on fluoridation according to age of respondent's youngest child.*

Opinion on fluoridation	Age of youngest child			
	No child	Under 6	6–18	Over 18
Definitely for	54	57	45	28
Indifferent or undecided	26	33	40	43
Definitely against	20	10	15	28
Total	100	100	100	99
(N)†	(39)	(118)	(73)	(88)

*See Table 1.
†See Table 1.

TABLE 4 Percentage distribution of opinions on fluoridation according to selected categories of education.*

Opinion on fluoridation	Education in years			
	1–6	7–9	10–12	13 plus
Definitely for	13	32	54	68
Indifferent or undecided	64	47	30	20
Definitely against	23	21	16	12
Total	100	100	100	100
(N)†	(31)	(97)	(142)	(82)

*See Table 1.
†See Table 1.

TABLE 5 Percentage distribution of opinions on fluoridation according to income.*

Opinion on fluoridation	Income in $					
	Under 1,000	1,000–2,999	3,000–4,999	5,000–6,999	7,000–8,999	9+
Definitely for	24	23	48	65	67	58
Indifferent or undecided	52	49	31	30	25	29
Definitely against	24	28	21	4	8	13
Total	100	100	100	99	100	100
(N)†	(21)	(61)	(111)	(92)	(24)	(24)

*See Table 1.
†See Table 1.

a definite "for" or "against" fluoridation compared to 67 per cent of those with children under school age. On the other hand, the contrast between the groups in terms of direction of opinion is striking, for while only 20 per cent of those with grown-up children are in favour of the issue, nearly twice that number in the preschool group claim to be in favour of fluoridation. Those without children tend to report opinions more similar to those respondents with young children than those with grown-up families. The distribution of opinions for and against fluoridation is statistically significant.

Education. — As shown in Table 4 only 13 per cent of those with one to six years education are in favour of fluoridation, nearly double that percentage are against, while in the "thirteen years plus" category 68 per cent of the respondents are definitely in favour. With increasing education the probability of a pro-fluoridation opinion increases, and the distribution of opinions is significant at the .01 level. Further, while the least educated group have a total 64 per cent of "indifferent and undecided" responses, the "thirteen years plus" group have only 20 per cent who have not made up their minds one way or the other.

Income. — As income increases, the percentage of pro-fluoridation opinions increases and the percentage of "indifferent and undecided" responses decreases, with a slight but not significant tendency to reversal in the "over $9,000" category. It is seen from Table 5 that the percentage of anti-fluoridation opinions is lowest in the $3,000 - $4,999 and $5,000 - $6,999 categories with only 4 per cent and 8 per cent respectively claiming "anti" opinions. The

TABLE 6 Percentage distribution of opinions on fluoridation according to occupations.*‡

Opinion on fluoridation	Occupations					
	Professional	Managerial	Self-employed	Clerical-sales	Skilled and semi-skilled	Unskilled
Definitely for	62	61	42	63	49	41
Indifferent or undecided	33	26	46	28	34	44
Definitely against	5	13	12	9	17	15
Total	100	100	100	100	100	100
(N)†	(21)	(23)	(26)	(43)	(146)	(27)

*See Table 1.
†See Table 1.
‡Classified according to the respondent's occupation if male, single female, widow or divorcee; otherwise by husband's occupation. Retired and unemployed are omitted from the table.

"over $9,000" group, on the other hand, has 13 per cent opposed to the issue.

Occupation. — Occupation also effectively differentiates opinions on fluoridation although, as in the case of interest, the self-employed constitute a group that is more like the unskilled than the professional and managerial levels in the distribution of their opinions on fluoridation. As is shown in Table 6, however, the higher occupational levels are more in favour of fluoridation than are the lower levels — in fact, it might be said that the professional and white collar workers are distinctly in favour of fluoridation with relatively few "indifferent or undecided" and but a sprinkling of "anti's." Of the blue collar workers, on the other hand, less than 50 per cent are in favour of fluoridation, 40 per cent are indifferent and 15 per cent are opposed. The distribution of the "for" and "against" responses according to occupation is significant at the 0.01 level, but the distribution of the definitely "for" or "against" the issue compared to those who are undecided is not significant.

Property Ownership.—Finally, differences between property owners and non-property owners in terms of direction of opinion on fluoridation and the definiteness of that opinion are not significant. In fact, any differences that do exist tend to be in the opposite direction to that predicted by the hypothesis. Thus, as is seen from Table 7, 33 per cent of the non-owners have indifferent or undecided opinions in contrast to 37 per cent of the owners. It is noteworthy, however, that while 55 per cent of the non-owners are in favour of the issue, only 43 per cent of the property owners express this favourable opinion.

Discussion

It is clear from the foregoing results that the opinions on fluoridation in Edmonton are not distributed by chance in the population. Thus, the higher the education, the higher the occupational level and the higher the income, the more likely the individual is to be in favour of

TABLE 7 Percentage distribution of opinions on fluoridation according to property ownership.*

Opinion on fluoridation	Ownership status	
	Owns property	Does not own property
Definitely for	43	55
Indifferent or undecided	37	33
Definitely against	20	12
Total	100	100
(N)†	(235)	(119)

*See Table 1.
†See Table 1.

fluoridation. Significant differences were also found in age groups with the oldest people being more likely to be against fluoridation, while those with young families are more likely to be pro-fluoridation than are those with grown-up families. Education, however, is the only characteristic that distinguishes those who have a definite opinion and those who are undecided. The higher the educational level, the more likely that an individual is to have a definite opinion on the subject of fluoridation.

In interpreting these findings, care must be taken not to accept the empirical regularities as validations for the bases on which the predictions were made. Thus, while it may well be argued that the older individual will be less likely to be in favour of fluoridation because he is more removed from the effectiveness of the measure whether for himself or for his family, the finding that older people are, in fact, less likely to be in favour hardly validates the argument. This problem of the explanation of demographic regularities is, of course, inherent in the research design but avoidance of the circularity of argument in part, and identification with greater exactitude of the various subgroups can be accomplished by what is known as multi-variate analysis. Multivariate analysis studies the distribution of a variable by two or more characteristics at the same time.

Take, for example, the finding that property owners are more likely to be opposed to fluoridation than are non-property owners which poses an explanatory problem. With the assumption that those who rent are likely to be younger than those who own houses, the distribution of opinions on fluoridation was analysed according to property ownership within age categories. It was found that those individuals over 50 who do not own property are no more likely to be in favour of fluoridation than those renting houses. In this way, property ownership can be demonstrated to be a spurious factor in the differentiation of "for" and "against" opinions.

Is age, then, a critical variable? While explanations can be advanced that the older the individual, the less likely he is to favour innovations, particularly of a controversial nature, such an explanation requires validation. Since older people are probably less likely to have had as many years of education as the younger generation, the relevance of age may be partly determined by whether it distinguishes between those "for" and those "against" fluoridation within categories of education. In actual fact, analysis of the distribution of opinions on fluoridation in terms of age within categories of education reveals that people over 50 with high school education are significantly less likely to be in favour of fluoridation than are people under 50 with high school education. With education controlled, age still differentiates between those "for" and those "against" fluoridation.

Among the many relationships between the various characteristics that could be analysed it is sufficient here to indicate the direction in which further analysis might be profitable. If only one characteristic can be selected as the test variable the one that would seem to have most interest for sociological research would be some index of socio-economic status. Most studies have reported that an anti-fluoridation opinion is associated with low income and low occupational level and in view of the evidence that the lower classes do not take advantage of opportunities to better their lot, the anti-fluoridation attitude may well be a sub-cultural trait. Arnold Simmel hypothesized that opposition to fluoridation is "an expression of hostility deriving from sense of deprivation" and demonstrated that people who oppose fluoridation have "low incomes, low occupational status, hold statuses which are divergent in terms of social evaluation, and are lower in feelings of political efficacy."[6]

The role of socio-economic status can be shown by comparison of the distribution of opinions according to occupation within the categories of a variable that has been shown to differentiate opinions

on fluoridation. For example, the question might be asked as to whether those people with school age children are consistently in favour of fluoridation regardless of their socio-economic status. Analysis in these terms shows that "white collar" and professional people with school age children are significantly more likely to be in favour of fluoridation than are the skilled and semi-skilled who also have children of school age.

The number of useful multi-variate analyses that can be carried out is very much limited by the numbers in the sample. Only a few of the analyses that would be possible and fruitful have been described. Quite clearly, however, generalizations about the distribution of opinions on fluoridation in terms of a single social characteristic are open to question and need considerable elaboration.

Summary and conclusions

1. Distribution of opinions on fluoridation has been studied in relation to sex, age, age of children, education, income, occupation and property ownership in Edmonton, Alberta.

2. The higher the education, the higher the occupation level and the higher the income, the more likely the individual favoured fluoridation.

3. Significant differences were also found in age groups with the oldest people more likely to be against fluoridation while young families were more likely to be pro-fluoridation than those with grown-up families.

4. The higher the educational level, the more likely an individual had a definite opinion on the subject of fluoridation.

5. Forty-seven per cent of the sample professed to be definitely in favour of fluoridation, 17 per cent definitely opposed and 36 per cent were indifferent or undecided.

6. In the matter of opinion on fluoridation multiple variables exist and the distribution of opinion cannot be adequately described on the basis of a single social characteristic.

Résumé

On a coordonné les opinions des citoyens d'Edmonton, Alberta, au sujet de la fluoration en rapport avec le sexe, l'âge, l'âge des enfants, l'éducation, les revenus, l'occupation et les titres de propriété. On a remarqué que plus les gens sont instruits, plus ils ont une occupation importante, plus leurs revenus sont considérables, plus ils sont en faveur de la fluoration. On a trouvé des différences notables dans les groupes d'âge: les gens âgés sont davantage contre la fluoration; les jeunes familles sont plus en faveur de la fluoration que les familles dont les enfants ont grandi. Plus leur niveau d'éducation est élevé, plus les gens ont une opinion formée au sujet de la fluoration.

Quarante-sept pour cent des personnes questionnées au sujet de la fluoration se sont prononcées en faveur de cette mesure, 17 pour cent définitivement opposées et 36 pour cent indifférentes ou sans idée fixe.

Plusieurs variantes existent sur la question d'opinions au sujet de la fluoration et la classification des opinions ne peut pas s'établir adéquatement en se basant sur un seul facteur social.

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University of Alberta

annotations

USE OF THE CORPORATION IN THE PROFESSIONS

L. C. Kindree, M.D., Squamish, British Columbia. (The following comments, prepared by B. E. Fraemo, Secretary for Medical Economics, Canadian Medical Association, in response to an article submitted by Dr. Kindree to The Canadian Medical Association Journal *and to the* Journal of the Canadian Dental Association, *were published in* The Canadian Medical Association Journal *89:631, September 21, 1963.)*

We have recently received an excellent analysis of the use of the corporate form by professional persons. The author is Dr. L. C. Kindree of Squamish, British Columbia, and he is, of course, primarily interested in the application of the corporate device to the practice of medicine.

Dr. Kindree compares the merits of corporations and partnerships and he concludes that their inability to use the corporate device discriminates against physicians, dentists and other professional persons. Two factors are of primary importance:

Joint Liability.—Under partnership law each partner is liable jointly with his other partners for all the debts and obligations of the firm while he is a partner and, of course, the firm is liable for any wrongful act or omission of any partner.

Tax Law.—Certain tax concessions are available to corporations which are not available to partnerships or to individual proprietors.

Dr. Kindree comments on the recent action of 20 American states which have introduced legislation which allows professional persons to incorporate. The activities of these corporations are controlled by Professional Service Corporation Acts, the provisions of which allow the use of corporate form, while insuring that existing personal relationships between professional persons and the persons who receive their services are not disturbed.

Dr. Kindree believes that Canadian provinces should introduce similar legislation and he has set out a suggested form of legislation using existing American acts as a guide. Pertinent sections which are quoted hereunder illustrate the methods which have been used to overcome previous criticism of the use of the corporate form by professional persons.

Intent.—"This Act shall be so construed as to effectuate its general purpose making available to professional persons the benefits of the corporate form for the business aspects of their practice while preserving the established professional aspects of the personal relationship between the professional person and those he serves (Oklahoma)."

Definition.—"Professional Corporation . . . means a corporation which is organized under this Act for the sole and specific purpose of rendering professional service and which has as its shareholders only individuals who themselves are duly licensed or otherwise legally authorized within this state to render the same professional service as the corporation . . . (Michigan)."

Officers.—"No person may be an officer, director, or shareholder of a professional

corporation who is not an individual duly licensed to render the same specific professional services as those for which the corporation was organized. No person may be simultaneously an officer, director, or shareholder of more than one professional corporation (Oklahoma)."

Employees.—"A professional corporation may render professional services only through its officers, employees, and agents who are duly licensed to render such professional services; provided, however, this provision shall not be interpreted to include in the term employee, as used herein, clerks, secretaries, bookkeepers, technicians, and other assistants who are not usually and ordinarily considered by custom and practice to be rendering professional services to the public for which the license is required (Oklahoma)."

Liability.—"This Act does not modify any law applicable to the relationship between a person furnishing professional services and a person receiving such services, including liability for tort arising out of such professional service, and including the confidential relationship between the person rendering such professional services and the person receiving such professional service, if any, and all confidential relationships previously enjoyed under the laws of this state or hereinafter enacted shall remain inviolate. Subject to the foregoing provisions of this section, members or shareholders of any professional association organized pursuant to the provisions of this Act shall not be individually liable for the debts of or claims against the professional association unless such member or shareholder has personally participated in the transaction for which the debt or claim is made or out of which it arises . . . (Alabama)."

Professional Regulation.—"Nothing in this Act shall restrict or limit in any manner the authority and duty of the regulating boards for the licensing of individual persons rendering professional services or the practice of the profession which is within the jurisdiction of such regulating boards, notwithstanding that such person is an officer, director, shareholder, or employee of a professional corporation and rendering such professional services or engaging in the practice of such profession through such professional corporation . . . (Oklahoma)."

Disqualification. — "If an associate of a professional association becomes legally disqualified to render in this state the professional services for which the association was organized, he shall sever all employment with and financial interest in such association forthwith (Virginia)."

Value of Interest. — "In the event the articles of the association or by-laws do not fix price at which the association or its associates may purchase the interest of a deceased, retired, expelled or disqualified associate, or a method of arriving at such price, then the price of such interest shall be the book value of such interest at the end of the month immediately preceding the death, retirement, expulsion, or disqualification of the associate, determined under generally accepted accounting methods by an independent certified public accountant by the association for the purpose . . . (Virginia)."

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abstracts

A COMPARATIVE CLINICAL STUDY OF THREE DENTIFRICES

S. B. Finn and H. C. Jamison. J. Den. Children 30:17, 1963.

The authors undertook a study to evaluate the comparative effectiveness of three specific dentifrices, two of which have been marketed and a third for which a preclinical evaluation appeared promising. They report the results of a two-year study to test the comparative value of the three dentifrices.

The dentifrices were:

1. A 0.76 per cent sodium monofluorophosphate toothpaste formulated in a compatible base of insoluble sodium metaphosphate as the polishing agent, and a mixture of sodium lauroyl sulphate and sodium N-lauroyl sarcosinate to provide the desired taste and foam characteristics (pH about 5.5).

2. A 0.4 per cent stannous fluoride toothpaste formulated in a compatible base with calcium pyrophosphate as the polishing agent (pH 4.5-4.8).

3. A 2.0 per cent sodium N-lauroyl sarcosinate toothpaste compounded in a compatible base containing dicalcium phosphate dihydrate as the principal polishing agent (pH about 7).

For this study two of the dentifrices were compared with the third (the stannous fluoride - calcium pyrophosphate toothpaste) which had extensive documentation as a caries-inhibiting dentifrice. The subjects were 428 white and Negro children in residence at a school for the deaf and blind.

The results showed that on a comparative basis the dentifrice containing 0.76 per cent of sodium monofluorophosphate permitted approximately 25 per cent fewer new df surfaces than a dentifrice containing either 0.4 per cent stannous fluoride with calcium pyrophosphate or one containing 2.0 per cent sodium N-lauroyl sarcosinate with dicalcium phosphate dihydrate. The reduction in dental caries of the fluorophosphate dentifrice was highly significant statistically.

A CLINICAL TRIAL OF A NEW ANALGESIC AGENT

Victor Goldman and William Gray. Brit. D. J. 115:59, 1963.

A large scale clinical trial of a new local anaesthetic, propitocaine (also known as L.67 or *Citanest,* Astra), was undertaken with the aim of obtaining an overall picture of the value of this new agent in dentistry. Propitocaine is chemically related to lidocaine *(Xylocaine).* It is a short acting analogue of lidocaine.

Two solutions of propitocaine were compared with lidocaine in more than 12,000 patients.

In this trial a three per cent solution of propitocaine with adrenaline 1:300,000 was found to be comparable with two per cent lidocaine with adrenaline 1:8,000; and at a period two hours after injection the soft tissues were free from anaesthesia in a higher proportion of cases.

The incidence of initial pain was lower, and immediate side effects were less frequent. The speed of onset of anaesthesia was found to be similar with both propitocaine and lidocaine.

In mandibular block anaesthesia there was no appreciable difference in duration between the solutions.

editorials

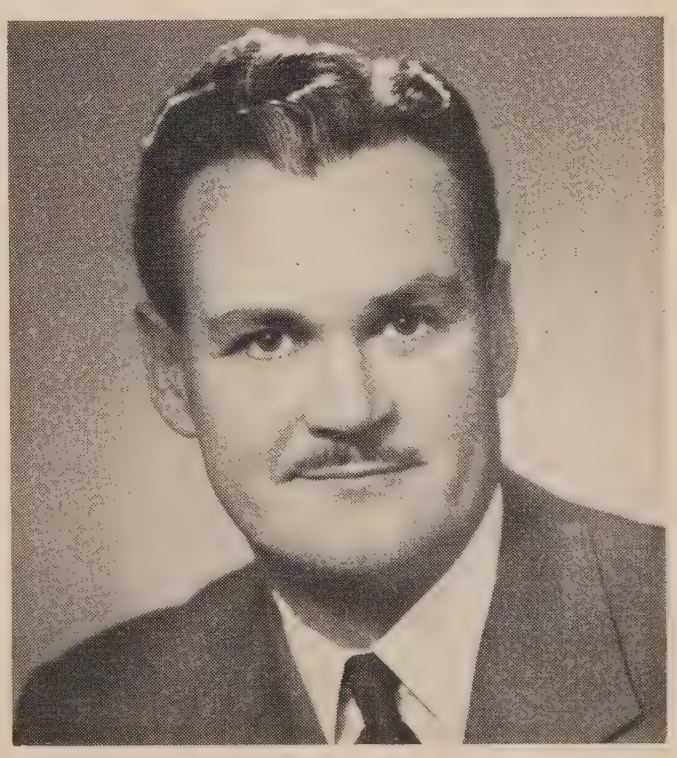
William G. McIntosh: new secretary of the Association

The Journal is privileged to announce in this issue the appointment of a new secretary of the Canadian Dental Association. William G. McIntosh, D.D.S., M.Sc.D., was recently appointed to that position by the Executive Council. Dr. McIntosh, who will succeed the present secretary, D. W. Gullett, on January 1, 1965, assumes his new duties on September 1, 1964. At that time Dr. McIntosh relinquishes his present position as associate professor of periodontics at the Faculty of Dentistry, University of Toronto.

Very few dentists have been privileged to offer the Association the unique combination of experience, training and personal qualifications possessed by Dr. McIntosh. He is a graduate of the University of Toronto where he received doctor and master of dental surgery degrees. One of Canada's leading periodontists, Dr. McIntosh practised in Trenton and Oshawa, Ontario, prior to locating in Toronto in 1938. He has served as consultant in periodontics to the Hospital for Sick Children and to Sunnybrook Hospital, Toronto. In 1958 he was president of the Canadian Academy of Periodontology.

In addition to teaching and practice responsibilities, Dr. McIntosh has held various appointments in organized dentistry. He served on the Board of Governors and Executive Council of the Canadian Dental Association. In 1959 he became president of the Canadian Dental Association. As current chairman of the Association's Dental Services Committee, Dr. McIntosh was intimately concerned with preparation and presentation of recent Association briefs to various government commissions, including the Royal Commission on Health Services.

With a distinguished background in private practice, dental education and research, Dr. McIntosh brings to the Association a range of talents which are accorded to few. Members of the Association will wish to congratulate him wholeheartedly on his new appointment and extend their support in his position of responsibility.



Dentistry's place in public health

Several senior dental directors in our federal and provincial health departments have either recently retired or will do so very shortly. Undoubtedly, no effort will be spared to replace these key individuals with competent successors. But that may be quite difficult since the number of available potential candidates with the required attributes is limited. This points up the critical need for something we lack — a corps of public health trained dentists in intermediate positions of responsibility which could be a source of experienced candidates when senior executive positions become vacant. And capable public health dentists will be needed more than ever as relations between governments and the profession increase in complexity.

Dentistry's participation in public health — not as scattered individuals, but as a professional group with defined objectives — dates back to the middle 1940's. Dental epidemiology and experience of war-time dentistry had revealed the magnitude of the dental problem. Dental organization, practice, research and education were adapted by the profession to meet new demands. Federal, provincial and local government departments incorporated or re-activated dental elements in their organizational structure. Postgraduate courses in dental public health were inaugurated at the University of Toronto and Université de Montréal. These were promising beginnings.

Initially, a good number of dentists entered these courses and accepted appointments in health departments at all levels of government. Gradually, however, the impetus slackened. Several factors have conspired to bring this about. In some instances a gap between salary and income from private practice discouraged potentially well qualified individuals from pursuing a career in dental public health. Sometimes the financial help to undertake postgraduate studies proved inadequate to attract competent, ambitious people. Over the years, an additional element — the administrative position of the dentist within a health department — has aggravated this situation.

There was a time many years ago when few dentists were employed by government health agencies. If they were employed, it was often on a casual basis and usually in a limited capacity. A dentist retained in this way was usually attached to the most convenient medical division of the employing agency. He reported to that division and worked under the direction of its medical officer. This arrangement worked reasonably well as long as only a few dentists were involved. But it is unsatisfactory for present-day purposes. Where this antiquated administrative philosophy persists the effect has been detrimental to programs and personnel alike.

Economical and effective utilization of public funds and public health trained dentists and the willing co-operation of the profession require an enlightened attitude on the part of public health administrators. To function in an unhampered way, to the full capacity of the profession, dentistry's public health trained arm within health departments must have effective and mutually satisfactory relationships to other professions within that administrative framework — especially with the medical profession. Co-ordination of dentistry's professional function and those of other professions by administrative direction is a recognized necessity in these circumstances. But control of strictly professional matters is something entirely different. This control should be exercised by the senior

dental officer. It should not be a function of any other person.

Experience shows that the development of sound dental programs depends as much upon the ability and willingness of the administrator to limit himself to general administration and to depend on his dental adviser for professional and related advice as it does upon the capacity of that adviser to give it. Where such a balance exists the prospects are greatly enhanced for the unhampered operation of an equitably financed and professionally designed dental program. This is more likely to occur where the senior dental officer reports directly to the department's highest executive level — the medical health officer or the deputy minister. Where he reports to someone at a lower level special difficulties for the dental program and even for the dental profession are either inherent or potential. The administrator to whom the senior dental officer reports then becomes the adviser to the department head on all matters under his direction, including the dental ones. This has the effect of excluding, or at least making no specific provision for the presence of a dental officer when top level policy involving dental matters is formulated. It also sets a precedent for lower administrative levels which may be concerned in any way with dental matters.

The establishment of a dental position whose incumbent reports directly and only to the department head would have a beneficial bearing on dental relationships within the program and on the dental profession within that department and externally. Arrangements of this type are in effect in the British Ministry of Health, the Department of Health for Scotland and the United States Public Health Service. Why not in Canada?

Be a supporting member of the Fédération Dentaire Internationale

- to develop contacts with dentists in other countries,
- to keep abreast of dental developments around the world,
- to attend annual sessions and special congresses in foreign lands,
- to be a part of your profession's voice in health activities, promoted through the World Health Organization.

F.D.I. supporting members receive the quarterly *International Dental Journal, F.D.I. News Letter*, membership certificate and membership card. The annual fee is $15 (Canadian funds). Life membership fee is $200. Complete the form below and return with your cheque or money order to D. W. Gullett, F.D.I. national treasurer, 234 St. George Street, Toronto 5, Ontario.

Fédération Dentaire Internationale

I wish to be a supporting member of the Fédération Dentaire Internationale

Name (please print) _____

Address _____

Annual ☐ Life ☐ Signature _____

special feature

Headquarters addition completed; relieves overcrowding

Canadian Dental Association headquarters — literally bursting at the seams — got a spanking new addition last month. The handsome grey and purple brick structure, which adjoins the existing headquarters building in midtown Toronto, provides a new and more spacious board room, enlarged printing facilities and badly needed accommodation for executive and editorial offices.

It has been apparent for some time that space in the old headquarters building was inadequate to enable the staff to perform efficiently. The board room was not large enough to accommodate many meetings of the size required by an active organization; library service was increasingly hampered by inadequate or makeshift accommodation for books and journals; the printing department in its cramped and damp basement was having difficulty keeping pace with the many demands for its services.

Just how severely the office facilities were being taxed was brought to a head when the Association was preparing its brief for submission to the Royal Commission on Health Services. Then, any and all available space had to be utilized and some of the work even had to be done outside the building.

To remedy this obvious need for additional space, the Board of Governors approved the erection of a three-storey addition to the existing building in 1962. Construction began on May 6, 1963, after a year's delay owing to zoning restrictions and other municipal problems. On January 27 of this year the new addition became ready for occupancy.

With completion of the new extension, the combined headquarters has an additional 3,000 square feet of office space to meet the growing needs of the Association. The extension is located at the rear (west) of and connected by a stairwell to the old building which was a former residence pur-

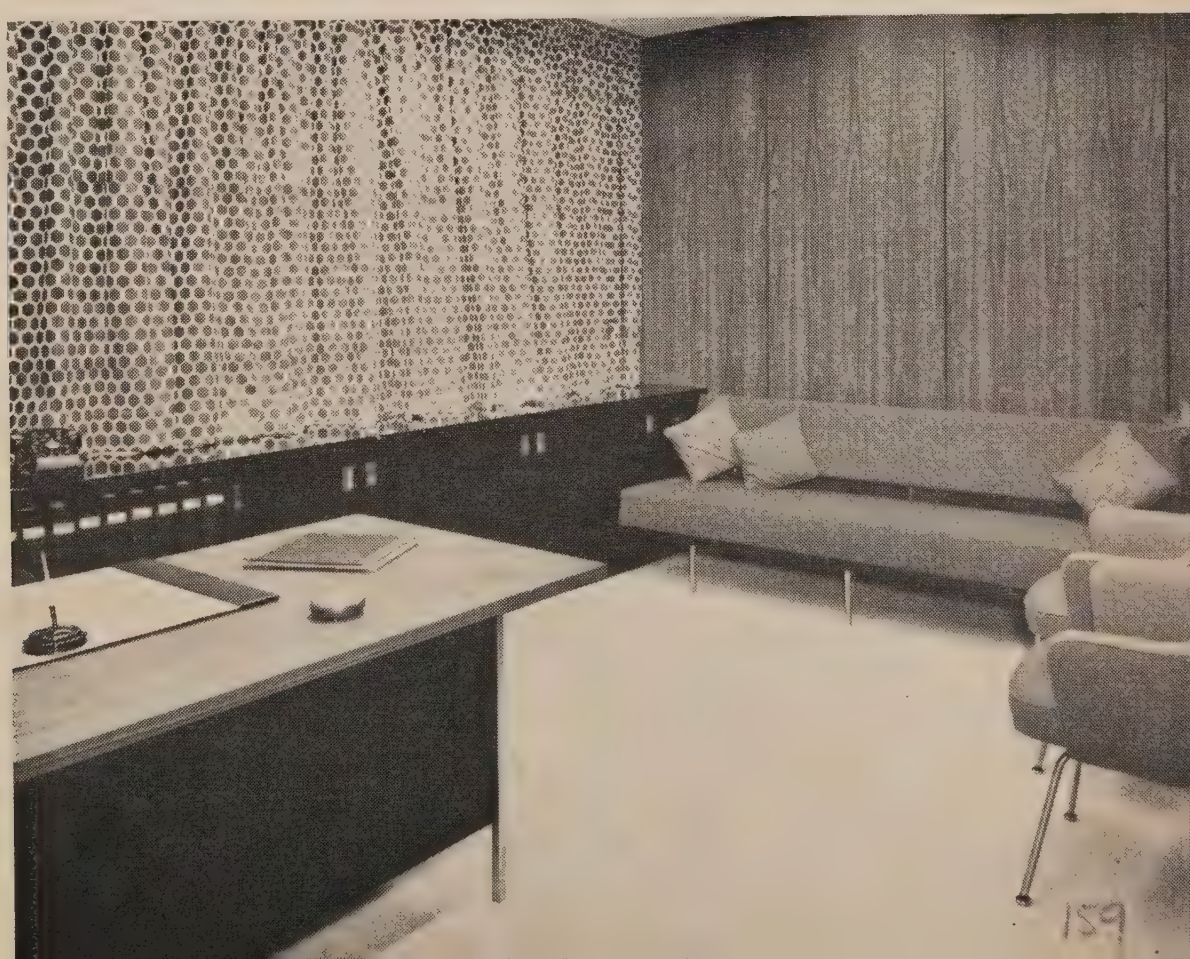
Focal point of Canadian dentistry is Canadian Dental Association headquarters at 234 St. George Street in midtown Toronto (top r.) which the Association has occupied since 1951. The new three-storey addition (bottom l.) is situated to the rear.

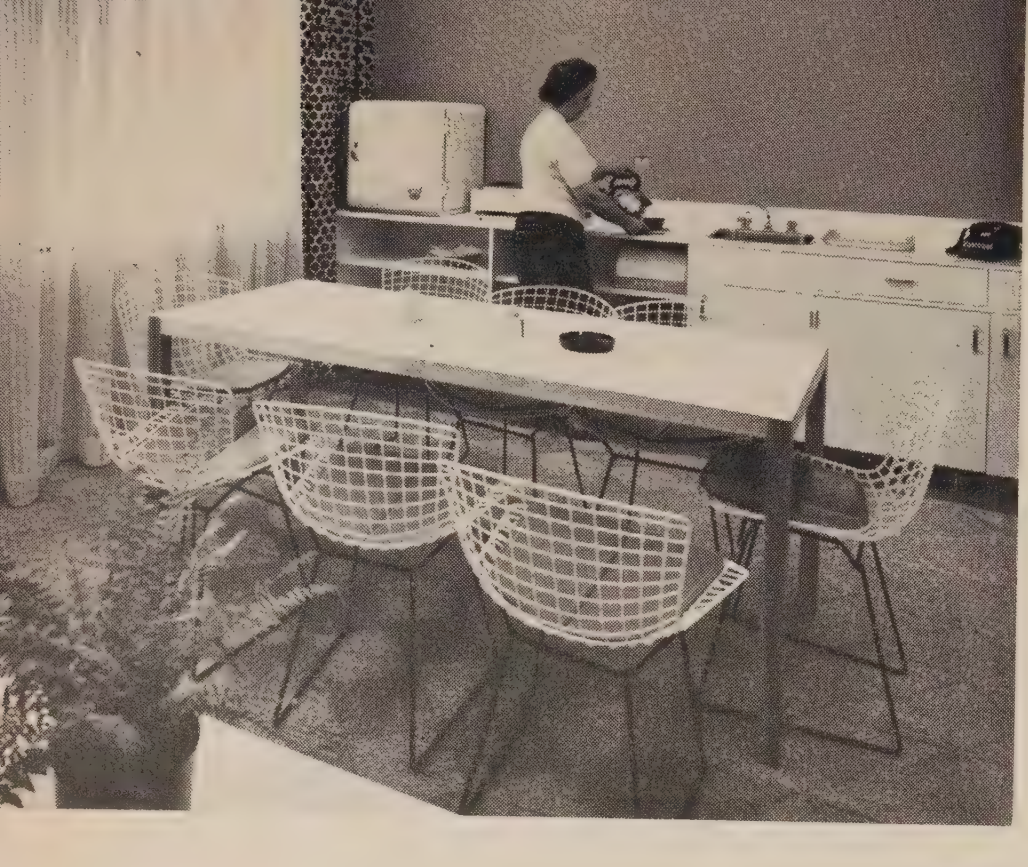
The spacious new boardroom.

chased and renovated by the Canadian Dental Association in 1950.

The new wing has its own heating plant and other utilities not connected with the other building. The ground floor accommodates the printing department. Here many dental pamphlets are produced, stationery and reports for the Association are printed, articles from the *Journal of the Canadian Dental Association* are reproduced, and other educational literature prepared. The attractive walnut panelled board room on the second floor is about 30 feet square, furnished with four spacious walnut tables and chairs upholstered in royal blue. The Association secretary and his secretary also oc-

Office of the Secretary of the Association.





Lunchroom

cupy the second floor in offices which carry out the same decor as the board room. The third floor houses the editorial department and provides a bright, cheery room for the staff at lunch time and for other occasions. This floor is not completely finished and will provide additional office and meeting space for future needs.

The west walls of all the rooms in the new extension have windows from one end to the other. These are attractively decorated with neutral coloured curtains and drapes in charcoal, blue and purple.

Air conditioning is another feature of the addition which adds to the comfort and makes for better working conditions. Each office is equipped with recessed fluorescent lighting.

The transfer of certain departments to the new wing releases badly needed space in the old section of the building. This can now be utilized to make improved administrative and office space for the rest of the staff who will enjoy more pleasant, less crowded working quarters. The old board room will be remodelled to enlarge the library and provide accommodation for an expanding, up-to-date information centre for dentists. These alterations to the older building will complete the expansion program authorized by the Board of Governors.

Editor's office

dentistry in the news

W. G. McIntosh to succeed D. W. Gullett as Association secretary

President James Zimmerman has announced the appointment of William G. McIntosh of Toronto as secretary-designate of the Canadian Dental Association. Dr. McIntosh officially succeeds the present secretary, Don W. Gullett, upon the latter's retirement at the end of this year. The incoming secretary will, however, begin his new duties at Association headquarters on September 1.

The appointment of the new secretary climaxes a search for a successor to Dr. Gullett which extended over a period of several years. In his statement, issued under authority of the Executive Council, President Zimmerman described how the council made its selection after due consultation with each provincial corporate member of the Canadian Dental Association.

Born in Hanley, Saskatchewan, Dr. McIntosh received his early education in Prince Albert. Following predental studies at the University of Saskatchewan, he attended the Faculty of Dentistry, University of Toronto, where he received his doctorate in dental surgery in 1937. Following brief periods of practice in Trenton and Oshawa, Ontario, Dr. McIntosh returned to Toronto in 1938 where he has practised as a periodontist. He served in the Royal Canadian Dental Corps from 1942 to 1946. In 1957 he earned a master of science degree (M.Sc.D.) from the University of Toronto. He is associate professor of periodontics at the Faculty of Dentistry, University of Toronto; consultant in periodontics to the Hospital for Sick Children and Sunnybrook Hospital, Toronto; and has served as the first president of the Canadian Academy of Periodontology.

Dr. McIntosh has been very active in the affairs of the Canadian Dental Association. He served as chairman of the Council on Research from 1949 to 1954. He was named to the Board of Governors in 1957 and served as president of the Association in 1959-60. Currently, Dr. McIntosh is chairman of the Dental Services Committee.

Dr. McIntosh's qualities have not gone unnoticed outside Canada. A fellow of the American College of Dentists since 1950, he served as chairman of the college's research committee in 1957-58.

His intimate knowledge of dental practice and dental education, coupled with experience in the affairs of the Canadian Dental Association make Dr. McIntosh's appointment eminently fitting.

THIRD SURVEY OF DENTAL PRACTICE UNDER WAY

Dentists from coast to coast are now receiving questionnaires asking for current information on the conduct of dental practice. This survey, the third in a series undertaken by the Bureau of Economic Research of the Canadian Dental Association at five-year intervals, provides dentists and other health authorities with factual data on the conditions of dental practice throughout Canada. All members of the Association are urged to co-operate by completing and returning questionnaires promptly.

NEW INSURANCE COMMITTEE FORMED

A special committee on commercial insurance studies has been appointed by the Executive Council of the Canadian Dental Association. Broad initial terms of reference for the committee authorize it to investigate insurance programs sponsored by the dental profession; to make recommendations respecting the merits of policies offered, to recommend the means of operation of insurance programs; and to obtain expert advice when advisable. The first meeting of the new committee was held at Association headquarters in Toronto, February 13-14.

Attending the meeting were M. V. J. Keenan of Sudbury, past president of the Canadian Dental Association and temporary chairman of the new committee, D. C.

Steeves of Moncton, George Zimmerman of Montreal, D. C. Way of London, D. C. McKechnie of Edmonton and O. F. Wright of Vancouver.

PRESIDENT TOURS WEST

Canadian Dental Association President James Zimmerman visited dental organizations in western Canada between February 22 and March 6. He reported on Association activities to dental societies in eleven localities from Sudbury, Ontario, to Victoria, British Columbia, and to dental students at the University of Manitoba and the University of Alberta. Secretary D. W. Gullett accompanied the president. The localities visited were Toronto, Sudbury, Winnipeg, Regina, Saskatoon, Edmonton, Grande Prairie, Victoria, Vancouver, Parksville, Calgary, and Lethbridge.

EDUCATION, PAEDODONTIC MEETINGS HELD

The Council on Education met in Toronto, February 6-7. The six-man council was joined by deans of all Canadian dental schools for the two-day session. Two representatives of the Council on Dental Education of the American Dental Association also attended. Immediately preceding the council meeting, a conference on paedodontic teaching was held at Association headquarters. Teachers of paedodontics at all Canadian dental schools attended the conference under the chairmanship of W. H. Feasby of the University of Manitoba. J.-P. Lussier of Montreal is chairman of the Council on Education which has sponsored several such teaching conferences.

Canada and the Provinces

DENTURE BATTLE HOT IN MANITOBA

The following article headed "Battle for the Dentures," by John Dafoe, appeared in the Toronto *Globe and Mail*, January 25.

Winnipeg—Earlier this month, a full-page advertisement appeared in Winnipeg newspapers denouncing "an unprecedented law that denies you freedom of choice with respect to denture purchases."

At the bottom of the advertisement, a form was provided in which readers could record whether or not they had made use of the services of denturists and whether or not they were satisfied. The forms were to be sent to the provincial Government.

To get the matter into perspective, imagine that, 30 years ago, citizens had been asked by the nation's bootleggers to report to the Government whether or not they had ever patronized blind pigs and, if so, whether or not they were satisfied with the service provided.

For like bootleggers, the denturists are carrying on an illegal profession. And like bootleggers, they are clearly, in their illegal trade, filling a widely felt public need.

The advertisement was another blow in a battle which has been raging, in various degrees of intensity, for about 20 years. The battle has been getting hotter of late and proposals for new legislation, which is intended as a compromise, seem likely only to make it hotter.

On one side are the province's dentists, who under provincial legislation are given the sole right of practising dentistry, including the fitting of dentures. Allied with them is the Society of Dental Technicians of Manitoba, made up of the men who make the dentures for the dentists on prescription.

Opposed to them is the Association of Dental Technicians, the outlaw false teeth makers or denturists who, illegally but openly, fit, manufacture and sell false teeth, dealing directly with the public.

The pressure on the illegal denturists has been growing since 1960 when the Provincial Legislature amended the Dental Act to make it easier for the Manitoba Dental Association, which is given the responsibility for policing the act, to prosecute offenders.

Last May, private detectives raided dental laboratories in the city and seized equipment, files and furniture. Some of the technicians were charged and convicted of illegally practising dentistry. The convictions are now under appeal.

The so-called compromise bill which will be presented to next month's session of the Legislature, would give a little bit away to the technicians at the same time as it tightens the screws on them.

The bill, which has been proposed by the Society of Dental Technicians — the legal group — would permit technicians to repair dentures without a doctor's prescription.

However, it would require all technicians to be licensed under a self-policing organization which would undoubtedly be controlled by the legal technicians and not by the denturists.

The bill may win the endorsation of the Government but, if it doesn't, it could face a rough ride in the House. There is considerable public sympathy for the denturists and the president of the Manitoba Dental Association admitted this week that the battle with the denturists has damaged the dentists' image. "Suddenly, everybody thinks that we are the big heels," he said.

International Items

CANADIANS INVITED TO NEW ZEALAND CONFERENCE

An invitation has been issued to Canadian dentists to attend the Second Biannual Conference of the New Zealand Dental Association, August 24-28, at Auckland, New Zea-

land. Internationally known clinicians, including Harry Sicher of Chicago, and members of the Faculty of Dentistry of the University of Otago will participate in the scientific program to be held at the University of Auckland. Further information may be obtained from D. I. Pert, New Zealand Dental Association, 12 Kitchener Street, Auckland C.1, New Zealand.

NEW ORAL SURGERY JOURNAL PUBLISHED IN BRITAIN

The recently formed British Association of Oral Surgeons has commenced publication of its new journal, *The British Journal of Oral Surgery*. According to its editor, J. H. Hovell of London, the scope of the new journal will extend beyond pure oral surgery to include oral pathology and oral medicine. Specialized articles of value to general practitioners and others with an interest in oral surgery will be included. Subscriptions ($9 a year) may be mailed to the publishers, E. & S. Livingstone, Ltd., 15 Teviot Place, Edinburgh 1, Scotland.

U. S. DENTAL EDUCATION FUND RECEIVES $305,212

The American Fund for Dental Education has reported that the largest number of contributors since its founding gave a total of $305,212 in 1963. The American fund was created in 1955 for the collection and distribution of voluntary contributions in support of dental education.

The largest portion of income received by the fund last year was $121,249 from members of the American Dental Trade Association. The largest single contribution was $100,000 from the American Dental Association. Dental related companies, general business and individuals provided the remainder of the year's income.

A similar organization in Canada, the Canadian Fund for Dental Education, was inaugurated a year ago. It operates under a trust deed administered by the Canadian Dental Association. Headquarters of the Canadian fund is at 234 St. George Street in Toronto. The Canadian fund has received approximately $23,000 in its first year.

RITTER AND KERR COMPANIES MERGE

The merger of Ritter Company, Inc., and Kerr Manufacturing Company was recently announced by the presidents of both organizations. No changes are contemplated in the management of Kerr, which becomes a wholly-owned subsidiary of Ritter.

Ritter expects foreign and domestic (American) revenue in excess of 34 million dollars for 1963. Kerr annual sales are reported to be about five million dollars. Ritter is the world's largest manufacturer of professional equipment for the health field, including dental chairs and x-ray units. The firm operates three major plants in the United States and a large plant in Germany. Kerr Manufacturing Co. was established in 1891 and is one of the largest manufacturers of dental instruments and supplies in the world. The firm operates two plants in the United States, one plant in Italy, and distribution facilities in Canada, Switzerland and Germany.

CALIFORNIA JUDGE INVALIDATES DENTAL ELECTION

A California judge has vacated the offices of secretary, treasurer and president-elect of the Southern California State Dental Association and has decreed that a new election must be held under court supervision. The present officers were elected, partially with proxy votes, and the election was contested.

MOUTH PROTECTORS PRAISED

An official of the American Dental Association has predicted that mouth protectors will almost completely eliminate dental injuries to football players. The days of the traditional "toothless smile" of football players are definitely over, according to P. J. Sandell, director of the A.D.A. Bureau of Dental Health Education. He reported that a recent survey revealed a striking reduction in dental injuries among players under the mandatory mouth protector rule of the National Alliance Football Rules Committee. Students, coaches and dentists have praised the program. Dental societies in several Canadian cities have co-operated in mouth protector programs for body contact sports.

PAEDODONTICS COURSE OFFERED IN DETROIT

A postgraduate course in paedodontics beginning in September 1964 is offered by the University of Detroit School of Dentistry. The course is a two-year full-time course with two Mott Foundation fellowships available. Attendance is limited to four students. Further information may be obtained from

Recently honoured with life memberships in the Edmonton and District Dental Society were (l. to r.) J. C. Ward, B. N. Shlain, W. Scott Hamilton and J. A. McGinnis.

the Director of Postgraduate studies, University of Detroit School of Dentistry, 2985 East Jefferson Avenue, Detroit 7, Michigan, U.S.A.

PERIODONTOLOGY AND ORAL PATHOLOGY CONFERENCE SLATED FOR EASTOVER, MASSACHUSETTS

"An evaluation of present concepts in the periodontal field" will be the theme of the fifteenth annual Berkshire Conference in Periodontology and Oral Pathology to be held at Eastover, in Lenox, Massachusetts, June 14-18. The conference is open to general practitioners and dentists in specialized practice. Further information and application forms may be obtained by writing to Tufts Berkshire Conference, Tufts University School of Dental Medicine, 136 Harrison Avenue, Boston 11, Massachusetts, U.S.A.

Dental Organizations

JAW FRACTURES TOPIC OF VICTORIA SOCIETY

Speaking recently on the treatment of jaw fractures to the Victoria and District Dental Society, Henry Jackh, M.D. began with an interesting reference to Le Fort's experimental work at the beginning of the century in fractures of the upper jaw by utilizing cadaver heads and subjecting them to various degrees and vectors of force. Le Fort's classification still holds, and these lines of weakness are the areas where one looks in a facial radiograph for evidence of fracture.

A series of excellent films was also shown to illustrate most of the types of upper jaw fractures. It was pointed out that most mandibular fractures occur when the mouth is open. Since automobile accidents constitute the greatest single cause of facial injury, this type of injury may decline as seat belts come into greater use. In British Columbia it is now mandatory for new cars to be equipped with seat belts.

EDMONTON DENTISTS MEET

Members of the Edmonton and District Dental Society met in December to hear Alberta's British Information Officer, Douglas Walker-Brash, outline the progress Britain has made since 1940. The subject of Mr. Walker-Brash's address was "Twenty-three years after their finest hour."

Honorary life memberships were bestowed on J. C. Ward, B. N. Shlain, W. Scott Hamilton and J. A. McGinnis. All were members of the 1923 graduating class of the University of Toronto and have been practising dentistry since that time.

At the meeting F. L. Peterson and D. M. Vassos were also welcomed as new members of the society.

G. D. STIBBS ADDRESSES VANCOUVER GROUP

G. D. Stibbs, head of the department of operative dentistry at the School of Dentistry, University of Washington, spoke at the January meeting of the Vancouver and District Dental Society.

Dr. Stibbs, who formerly practised in Vancouver and held various positions in British Columbia dental organizations, is a noted teacher and lecturer.

Dr. Stibbs' first lecture dealt with the restoration of anterior teeth. Emphasized

Intent spectators at the January meeting of the Halifax and District Dental Society are (l. to r.) Doctors G. E. Clark and J. R. Fraser, dental hygienists Charlotte Gully and Joan Batchilder, and dental students Joan Atkinson and John Robertson.

were aesthetics, conservation of tissue, permanence, and the economics factor (ultimate cost to the patient). Indications for the different types of materials were given, and the advantages and disadvantages of each described. In his evening discourse, Dr. Stibbs commented generally on operative dentistry and outlined some of the projects of the dental school in Seattle, Washington.

He concluded his lectures by showing his fine motion picture entitled "Class V Gold Foil Restoration," which won the first grand prize at the international competition for films on dental subjects sponsored by the Paris, France, Society of Dental Surgery.

HALIFAX SOCIETY STAGES "HOME TALENT" NIGHT

A record number of dentists attended the January meeting of the Halifax County Dental Society held in the Nova Scotian Hotel, January 15. President H. L. Sable welcomed the members and their guests, fourth-year dental students from Dalhousie University to this initial "local talent night." Contributors to the table clinic program included D. C. Eaton, endodontics; R. A. I. Epstein, deciduous molar pulpotomy technique; J. Findlay, aetiology and symptoms of temporomandibular joint dysfunction; J. R. Fraser, rubber base impression materials; A. E. Hoffman, oral surgery; K. M. Kerr, mouth protectors; E. S. Morrison, reverse pin technique; T. E. Spracklin, orthodontics; and students from Dalhousie University School of Dental Hygiene, who demonstrated aspects of the undergraduate dental hygiene program.

SPERBER ADDRESSES EDMONTON DENTISTS

"Jaws, genes and evolution" was the main topic when G. H. Sperber, assistant professor with the Faculty of Dentistry at the University of Alberta, addressed the meeting of the Edmonton and District Dental Society on January 7, 1964. Dr. Sperber illustrated his lecture with slides. Presentations such as these enhance the close liaison between the staff, faculty, university and the practising dentists.

SASKATCHEWAN CONVENTION SET

April 4-5 are the dates for the 1964 Saskatchewan dental convention in Saskatoon. The host group is the Saskatoon and District Dental Society. Richard Roydhouse of the new dental faculty of the University of British Columbia will speak on "Newer concepts in dental materials." The College of Dental Surgeons of Saskatchewan will hold a general meeting during the convention.

Canadian Dental Schools

DESCHENES BECOMES SECRETARY OF MONTREAL FACULTY

Hervé Deschênes

Hervé Deschênes, head of the Department of Operative Dentistry at the Faculty of Dentistry of the Université de Montréal, has been named secretary succeeding Gérard deMontigny who is now vice-dean.

Holder of a bachelor of arts degree from Université Laval and the doctorate of dental surgery from Université de Montréal, Dr. Deschênes pursued postgraduate studies at Columbia University, New York, and at the University of Michigan. Following two years' service with the Royal Canadian Dental Corps, Dr. Deschênes joined the teaching staff of the Faculty of Dentistry at the Université de Montréal in 1947. He was promoted to associate professor in 1950 and in 1955 Dr. Deschênes became a full professor and member of the faculty council.

Dr. Deschênes is a member of national, provincial, state and local dental organizations in both Canada and the United States.

AMERICAN, AUSTRALIAN TEACHERS VISIT TORONTO FACULTY

The newly appointed dean of the Baltimore College of Dental Surgery, University of Maryland, J. J. Salley, visited the Faculty of Dentistry, University of Toronto, February 3. Dr. Salley is visiting various dental schools in connection with the planning of new facilities for the Baltimore school.

Professor Sir Arthur Amies, dean of the dental faculty, Melbourne University, Australia, also visited the Toronto school during the latter part of February.

TORONTO STUDENTS PUBLISH NEW UNDERGRADUATE JOURNAL

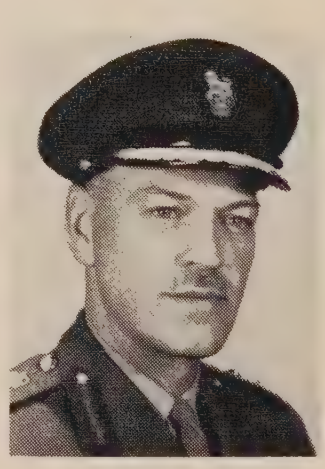
The first issue of an attractive new publication, the *University of Toronto Undergraduate Dental Journal*, appeared in January of this year. Published through the Dental Students' Society, the new journal contains original articles, case reports and book reviews as well as abstracts and editorial comment. The *Journal of the Canadian Dental Association* extends congratulations and best wishes to the contributors and editors of this latest dental student publication.

Royal Canadian Dental Corps

COL. MILLAR, COL. WOODS ARE QUEEN'S HONORARY DENTAL SURGEONS

Appointments of Colonel I. A. L. Millar and Colonel C. E. Woods as Queen's Honorary Dental Surgeons were recently approved by Her Majesty the Queen. Col. Millar is Deputy Director General of Dental Services and Col. Woods is Assistant Director of Dental Services (Militia) Central Command.

Appointment as Queen's Honorary Dental Surgeon is an honour granted to selected dental officers in recognition of distinguished service. It is held by officers of the Regular Force for "tenure of office" and by officers of the Militia for a period of two years.



Col. I. A. L. Millar

A 1938 graduate of Dalhousie University, Col. Millar practised in Liverpool, Nova Scotia, until December 1939, when he was commissioned as a lieutenant in the Canadian Dental Corps. In September 1941,

having attained the rank of captain, he was posted to the United Kingdom. He participated in the D-Day landings of June 6, 1944, when he was attached as a dental officer with No. 14 Canadian Field Ambulance, Royal Canadian Army Medical Corps, in the rank of major. In September 1945, he returned to Canada and was posted to Halifax, Nova Scotia, where he enrolled with the Canadian Army Regular Force. After serving in eastern Canada until 1947, he was posted to H.M.C.S. Naden, Esquimalt, British Columbia. Promoted to lieutenant colonel in November 1951 and to colonel in September 1957, Col. Millar assumed his present appointment as Deputy Director of Dental Services in June 1963.

Col. C. E. Woods

Col. Woods graduated from the University of Toronto in 1942 when he was commissioned as a lieutenant in the Canadian Dental Corps. In March of the following year he was promoted to the rank of captain, and in 1944 he proceeded overseas as dental officer with No. 4 General Hospital, Royal Canadian Army Medical Corps. While overseas, Col. Woods served in the United Kingdom and continental Europe. He returned to Canada in December 1945, and in February 1946, was released from the Canadian Army (Active). On transfer to the Canadian Army Militia in March 1949, Col. Woods joined No. 7 Dental Company (now No. 54 Dental Unit), Ottawa, in the rank of captain. Promoted to major in October 1950, he became second-in-command in December 1953, and assumed command of No. 54 Dental Unit in January 1956, in the rank of lieutenant colonel. In December 1959, Col. Woods vacated command of the unit and transferred to the Supplementary Reserve. He transferred back to the Militia on his appointment as Deputy Assistant Director, Dental Advisory Staff, in September 1960. Promoted to colonel, in September 1962 he assumed his present appointment as Assistant Director of Dental Services, Central Command.

CAPT. McQUEEN, CAPT. ROCHEFORT EXCHANGE POSTINGS

Capt. P. R. McQueen was recently posted to the Canadian Joint Air Training Centre, Rivers, Manitoba. He replaces Capt. J. M. L. Rochefort who now occupies the position previously held by Capt. McQueen at Headquarters, Camp Valcartier, P. Quebec.

OFFICERS ATTEND DENTAL MEETINGS

Lt.-Col. G. C. Evans attended the Mid-Winter Meeting of the Chicago Dental Society February 2-5, 1964, as official representative of the Royal Canadian Dental Corps.

Lt.-Col. W. R. Thompson, instructor in oral surgery at the R.C.D.C. School, Camp Borden, participated in the Third International Congress of Plastic Surgery which was held in Washington October 13-18, 1963. He also attended the Cytological Smear Technique Clinic at Université de Montréal on December 3, 1963.

Economics

MANITOBA ASSOCIATION CONTINUES STUDY OF DENTAL PLANS

The Manitoba Dental Association is continuing its study of a prepaid dental plan. Need for assistance from an insurance consultant has been recognized and funds for the purpose of making actuarial studies have been authorized.

MEDICAL CARE CENTRES DEDICATED

Three new group health medical care centres were dedicated recently in the United States and Canada and plans reported for several more centres devoted to prepaid medical care for average income citizens. The only Canadian centre is at Sault Ste. Marie, Ontario. It was constructed at a cost of $800,000 and financed by members of the United Steelworkers of America. Some 15,000 union members and their families will be serviced by this centre. According to the Group Health Association of America

construction has started on a non-profit community clinic at Prince Albert, Saskatchewan.

PRUDENTIAL OFFERS GROUP DENTAL INSURANCE

The Prudential Insurance Company of America is the latest insurance company to offer a group program for dental care. The company's aim is to provide a plan with attractive benefits at a reasonable cost. To do this, Prudential's plan will use a major medical insurance approach incorporating such devices as co-insurance and the deductible. Coverage for orthodontics is an optional benefit.

AMERICAN DENTAL ASSOCIATION DEFINES PROFESSION'S ROLE IN PREPAID DENTAL CARE PROGRAMS

A resolution adopted by the American Dental Association in October 1963 states, " . . . The dental profession should remain in complete control of policy and program development" for prepaid dental care. The A.D.A. had noted that nondental agencies in some states were trying to initiate prepaid dental programs. The resolution also emphasized that the responsibility for policy in the provision of dental services rests with the dental profession but it was also pointed out that this would be determined by the state dental service corporation in co-operation with the state dental association involved.

ALBERTA APPLIES FOR SERVICE CORPORATION

An application has been made to incorporate an Alberta Dental Service Corporation. It is planned to incorporate the dental service corporation under the Societies Act of Alberta.

AVERAGE INCOME OF DENTISTS

There was almost no change in the average income of Canadian dentists between 1960 and 1961. Dentists are still the fourth highest income earners with average incomes before taxes of $12,337, $11,481 of which came from professional sources.

The annual report on dentists' incomes appeared in the February issue of the *Journal of the Canadian Dental Association.*

MORE AMERICANS GET DENTAL CARE THROUGH GROUP INSURANCE PLANS

Dental insurance is increasing in the United States according to a statement made by R. A. Simpson in the December 24, 1963, issue of the *Wall Street Journal.* Many insurance companies are entering this field and there are increasing demands by labour unions for dental coverage. Mr. Simpson said that "one reason insurance companies are hurrying to make dental care coverage available is their desire to keep non-profit organizations (dental service corporations) run by state dental societies from dominating the field. Such organizations, which resemble Blue Cross and Blue Shield health care plans, have already been set up. . ."

A million and a half Americans are now covered by group dental insurance plans, he states, and thus the tendency is towards marked improvement in dental care for a greater percentage of the population. People covered by dental insurance take better care of their teeth. Workers in lower income brackets are able to have work done which was often badly needed but could not be afforded.

"The role of labour unions," Mr. Simpson continues, "in the spread of dental insurance is likely to grow. At its recent national convention in New York, the AFL-CIO instructed its staff to draw up guide-lines for member unions to use when bargaining for dental insurance."

The Teamsters have been leaders in obtaining health insurance plans and 36,500 members currently have dental coverage. Teamster dental insurance programs are active in Los Angeles, Sacramento and Seattle. Portland, Oregon Teamsters are also setting up a plan.

NEW YORK DENTAL SERVICE CORPORATION ANNOUNCES TWO ADDITIONAL CONTRACTS

In October 1963, the New York Dental Service Corporation added two groups for which it administers dental care plans. Sixty-five employees of Daimler-Benz and their dependants are covered under a plan which provides 50 per cent coverage. Part of the premium is paid by the company. The plan selected by Regency Creations, Inc., according to M. L. Dollar, executive director of the New York Dental Service Corporation, provides an annual maximum benefit

and has received tentative approval from the state insurance department. Twenty-nine employees and their dependants benefit from this contract which provides an annual maximum of $125 for each covered member of a family. The entire premium is paid by the firm. As Mr. Dollar pointed out, this contract has added significance since the Regency Creations, Inc. employs members of the Display Fixture Workers Union Local 2682 whose membership numbers 4,000.

APPROXIMATELY 23,400 COVERED BY HAWAII DENTAL SERVICE

A recent report in *Aloha-Dontia,* quarterly newsletter of the Hawaii State Dental Association, states that approximately 23,400 persons are receiving dental benefits for the second year through Hawaii Dental Service, the island's dental service corporation. The first contract became effective July 1, 1962, and five additional programs have been initiated since.

A report in the November 1963 issue of the American Dental Association's *Dental Health Highlights,* states: "The one-year contract for the (Hawaii) Stevedore Dental Plan, which expired on June 30, 1963, has been renewed for two more years. The plan was designed to provide dental care for 2,200 children and minor dependants of members of the International Longshore Workers Union Local 142, and covers children from birth through age 14. All types of paedodontic treatment are included, with the exception of orthodontics and cosmetic dentistry. The plan is financed through a fund to which the employer contributes 54 per cent and the employees 46 per cent. For each child treated during a contract year, the corporation receives $60 from the trustees. Utilization in the first year was 55.7 per cent, and the amount due participating dentists totalled $70,827.50 for services rendered. . ."

Public Health

McCORMICK IS NEW MANITOBA DENTAL DIRECTOR

C. H. McCormick has been appointed director of dental services for the Manitoba department of health. He had been dental director for the city of Winnipeg since 1957. R. A. Connor, former Manitoba dental director, resigned recently to accept a similar post with the Department of National Health and Welfare at Ottawa.

A 1955 University of Alberta dental graduate, Dr. McCormick earned a bachelor of arts degree from the University of Saskatchewan after wartime service as a sergeant-

C. H. McCormick

dental-assistant with the Canadian Army Dental Corps. He received his diploma in dental public health at the University of Toronto prior to his city of Winnipeg appointment.

Fluoridation

CANADIAN DENTAL ASSOCIATION CENSURES SLANTED FLUORIDATION ARTICLE

Canadian Dental Association officials have sharply criticized an article in the January 4 issue of *Saturday Review* entitled "Documenting the case against fluoridation." The author of the article, John Lear, based his attack on fluoridation on his own interpretation of a single published paper, "Accumulation of skeletal fluorides and its implication," (Arch. Environ. Health 6:664, May 1963) by J. R. Marier, Dyson Rose and Marcel Boulet of the National Research Council of Canada.

A statement by the C.D.A. Council on Education, released on February 3, labels the Marier-Rose-Boulet paper as a review without any original research that advances certain unfounded theories which might be construed as reflecting unfavourably on the safety of water fluoridation. The article presents no evidence to refute the well-established value of fluoridation as a safe and effective caries control measure. There is nothing in the original papers cited by these three authors that would warrant a delay in instituting fluoridation.

WINNIPEG FLUORIDATION SAVES MONEY AND TEETH

Seven-year-old Winnipeg school children had 60 per cent less tooth decay in 1963 than in 1958, according to the latest figures released by the Winnipeg Health Department. This benefit alone represents a minimum saving of approximately $16,000 which would otherwise be required for treatment expenditures for the 4,000 native born seven-year-olds in the city. An additional potential saving of $16,000 results from a similar saving in treatment costs applied to the same age group in Winnipeg suburbs. Comparable savings are realized with children in other age categories.

C. H. McCormick, former city dental director, reports that the cost of fluoridation in the Greater Winnipeg Water District is approximately $17,000.

ALBERTA FLUORIDATION LAW CHANGES SOUGHT

The Alberta Dental Association is reported to be pressing for a change in the government's two-thirds majority rule in fluoridation plebiscites in that province. Support for a change to a simple majority is evidenced in a recent Edmonton *Journal* editorial:

> . . . Alberta suffers from a serious shortage of dentists. . . . Many thousands of children suffer cavities and other forms of dental trouble simply because they are deprived of fluoridated water. The government should not be influenced by the comparative handful of mavericks among doctors and dentists who are opposed to fluoridation.
>
> . . . Many wise men with open and judicious minds have examined the fluoridation question with the greatest care and have concluded fluoridation is 100 per cent desirable. The Alberta government will be doing future generations a grave disservice if it should persist in the present law requiring a two-to-one vote for fluoridation.
>
> . . . it is not a proper subject for a popular referendum. But a straight majority vote will be considered a reasonable compromise in Alberta."

EXPECT NEW YORK TO FLUORIDATE BY SEPTEMBER

After ten years of debate and bitter controversy, New York city water is expected to be fluoridated by next September. Fluoridation was approved overwhelmingly last December by city council and the board of estimate.

Of the 12 largest cities in the United States only Los Angeles has not yet adopted fluoridation. Chicago, Philadelphia, Detroit, Baltimore, Houston (naturally fluoridated), Cleveland, Washington, St. Louis, San Francisco, Milwaukee, and now New York, all have fluoridation programs. Major cities in Canada with fluoridated water include Halifax, Toronto, Windsor, Winnipeg and Saskatoon. Canada's capital, Ottawa, plans a second fluoridation plebiscite later this year.

book reviews

UNITED STATES DENTAL MISSION TO THE SOVIET UNION

Report of the United States Dental Exchange Mission to the Union of Soviet Socialist Republics (U.S.S.R.), June 3 to June 25, 1961. Chicago, American Dental Association, 1963. 96 p. Illus.

This report describes dentistry in Russia as seen by the United States Dental Exchange Mission, June 3-25, 1961. Apparently there was no extended and systematic study of Soviet dentistry prior to this time. In spite of several pages of statistics, the text is interesting reading and the illustrations are attractive.

The account of visits to clinics and institutions reveals the primitive character of dental practice in Russia. Quantity instead of quality is stressed, and there is a lack of adequate equipment, instruments and materials. Dental research is limited.

There are two classes of dentists in Russia: the stomatologists with medical training who emphasize surgery rather than operative

and restorative dentistry, and the "three-year dentists" whose training is at a relatively low level. Dentists are not as well paid as manual skilled workmen. Depending on experience, the dentist receives a salary of about $60 per month.

The appraisal of Soviet dentistry appears to be a just one. The same cannot be said of the Russian report in the Appendix on United States dentistry by the Soviet Dental Mission to the United States, May 1961, published in one of the two dental periodicals in Russia. This report contains inaccuracies and at times it seems to be propaganda. The Americans "follow Miller blindly" in research into the aetiology of caries. "They are not using the latest studies for caries research." "The American dentists consider it harmful to put filling material above the apex in root canal therapy." And so on. The Russian delegation thought that educational work in dentistry in America is performed on an inadequate scale.

Even after reading the Russian report, it is evident that it will be a long time before the quality of dentistry in the Soviet Union can compare favourably with that in other parts of the world.

This book is highly recommended as a factual treatise on dentistry in Russia.

D. Hugh Munro

THE ADMINISTRATION OF LOCAL DENTAL PROGRAMS

University of Michigan School of Public Health, Continued Education Series No. 96. Ann Arbor, 1963. 278 p. $3.00

This publication is a detailed presentation of the proceedings of the fifth workshop on dental public health organized by the School of Public Health of the University of Michigan. The workshop was conducted at the request of the Dental Health Section of the American Public Health Association and was held in June 1961.

The report includes recommendations produced by eleven study groups. Each group was addressed by an expert in public health. The topics considered ranged from "Implications for the dental profession of an exploding population" through "Organizing a local dental program" to "Developing satisfactory inter-personal relations."

Of particular interest to those engaged in dental public health, the report contains a wealth of detail and is not without certain passages of revealing criticism. A notable example comes in a comment by J. T. Fulton, professor of epidemiology at the University of North Carolina. Speaking on dental epidemiology, Dr. Fulton says, "there seems to be an increasing trend for data to be presented by the statistical marvel, who, if given half a chance, will sprinkle Chi-squares or even sequential analysis like sugar on one's breakfast cereal. His game is to throw the data into high-speed computers, hopefully adjusted to print only those tables which show a five per cent level of significance."

R. E. Feasby

MORPHOLOGY AND ANATOMY OF THE HUMAN DENTITION

A. H. Segal. Chicago, Year Book Medical Publishers, Inc., 1963. 107 *p. Illus.* $5.50

Dentists, and more particularly dental teachers, need a book of this type where specific descriptions can be followed with a minimum of words and well produced illustrations and photographs.

A few years ago teachers of dental anatomy in Canadian dental schools held a conference to ascertain the best method of imparting sufficient knowledge of dental anatomy within a reasonable period of instruction. The most prevalent complaint was the lack of a text that covers this subject adequately. The texts available at that time were considered either too elementary or too detailed.

The author of *Morphology and Anatomy of the Human Dentition,* cognizant of this situation, has produced a text with sufficient information which the student can apply to clinical procedures.

Dr. Segal not only simplifies the description of the teeth, but also complements the text with excellent illustrations of carefully selected teeth. Too much emphasis is often placed on detailed descriptions of anatomical irregularities which are never duplicated in restorative dentistry. Dr. Segal's description of the individual tooth is sufficient to enable the student to carry out to a high degree of perfection all restorative procedures requiring this knowledge. The teeth chosen are typical; the photographs and illustrations are excellent. However, a more complete description and photographs of the deciduous dentition would have been advantageous.

Descriptions in the sections entitled "The functions of the teeth" and "The supporting structures of the teeth" lack sufficient detail. This may, however, be deliberate because this information can be acquired in other courses.

Dr. Segal's text comes close to describing what the student should know of dental

anatomy. This reviewer considers it invaluable to the teacher of dental anatomy.

Any review of the book would be inadequate without complimenting the publisher on the very pliable and durable cover and the type of "perfect" binding used. Wherever one opens the book, it lies flat and even. This is an excellent feature, especially for the student when he refers to this text in his laboratory procedures.

J. P. McGuigan

1964-1966 ANNOTATED GUIDE TO HEALTH INSTRUCTION MATERIALS IN CANADA

School Health Committee of the Canadian Health Education Specialists Society, Ottawa, 1964. 87 *p.* $1.00

A very concise and annotated Guide to health instruction material has been prepared by the School Health Committee of the Canadian Health Education Specialists' Society. It is the intention of the editor to up-date this Guide bi-annually by publishing a current supplementary list of materials.

This first issue of the Guide lists 666 pieces of material with brief annotation for each. The materials reviewed are listed under three major headings; i.e. physical, mental and social aspects of health. Major headings are subdivided to conform with areas of health instruction determined by an assessment of the curricula of health teaching currently in use in the ten provinces of Canada.

Another advantage to teachers and public health workers is the classification of materials according to their suitability for grades 1 - 6, 7 - 13 or adult reference, based on the Flesch analysis of reading ease, as well as the present inclusion of the subject matter in elementary and secondary school curricula.

Listed also is the type of material, such as booklet, folder, pamphlet, poster, and so forth. Code letters and addresses for sources of the materials are given. Prices where applicable are also listed; otherwise material not indicated as to cost is available without charge.

The listing of material within the 87 pages of this book is arranged in numerical order from 1 to 666. A subject index to materials has also been provided to facilitate in locating subject areas in the Guide proper. Subject headings are listed alphabetically. Guide numbers from the numerical listing are shown after each subject heading for cross-reference purposes as well as providing ease of locating subject material.

As an example of locating dental health material one would first consult the "Subject Index to Materials." Alphabetically arranged, "Dental Health" is shown with guide numbers 101 - 158, 395 - 400.

Under the major heading in the Guide proper of "Physical Health" and under subheading "Community Health Services" 58 dental health items are listed with brief annotation of the subject matter. Grade suitability, availability, sources and cost are also included. Under a further heading "The Human Body," sub-heading "Skeleton" six further references are given under "Teeth." In all 64 references related to dental health have been included.

The School Health Committee of the Canadian Health Education Specialists' Society is to be highly commended for preparing this comprehensive Guide to health education materials. A resource book of this kind was long overdue and greatly needed by teachers in science and health, by public health workers as well as voluntary professional and lay groups seeking material for program development purposes. This service brought up to date regularly will be most appreciated by all health workers.

G. T. Mitton

A MANUAL OF DENTAL AND ORAL RADIOGRAPHY

S. Blackman and H. G. Poyton. Bristol, John Wright and Sons Ltd., 1963. *(Available from The Macmillan Company of Canada Ltd.)* 192 *p. Illus.* $8.10

This first edition manual has been prepared, in the words of the authors, "as a means of forestalling such perplexities, vexations and disappointments which dental radiography is always liable to produce."

The result is a well illustrated text with clear concise explanations of dental and oral radiography.

Early chapters are devoted to many important phases such as hazards, protection, apparatus, films, processing, errors and other practical considerations.

Techniques for intra-oral radiography are well covered, but this reviewer would like to see the long cone paralleling technique for periapical radiography illustrated in more detail.

Extra-oral radiographic techniques are given comprehensive coverage in four chapters. Concluding chapters deal with dental radiography for children, stereoscopy, localization and opaque media.

This manual can be recommended as a valuable library addition for those concerned with dental radiography.

D. G. MacGregor

A MANUAL OF ORAL EMBRYOLOGY AND MICROSCOPIC ANATOMY

Dorothy Permar. Ed. 3. *Philadelphia, Lea & Febiger,* 1963. *(Available from The Macmillan Co. of Canada, Toronto)* 150 p. *Illus.* $7.15

This book is a manual intended for use by the dental hygiene student in conjunction with lectures and discussion periods. It presents basic knowledge of the origin and structure of the tissues of the oral cavity. The author has made an effort to avoid elaboration of details which are unnecessary for the efficient practice of the dental hygienist. Since this manual is written with the assumption that the student has had no previous instruction in embryology or histology, it also serves as an excellent textbook for students in the dental assisting course.

The illustrations are large and extremely clear. These are photographs and diagrammatic drawings from microscopic slides.

The first chapter deals with an elementary knowledge of the embryonic development of the face and oral cavity. It is followed by an introduction to general histology, which is extremely beneficial to a beginning student in this field.

The section on oral histology comprises the tissues of the tooth, the peridontium and the oral mucous membrane including the histology and function of the salivary glands.

This is a book of great value to the dental hygiene student as well as for the practising dental hygienist.

Mai Pohlak

THE CLEFT LIP AND CLEFT PALATE RESEARCH AND TREATMENT CENTRE

The Research Institute, The Hospital for Sick Children. Second Report 1960-62. 1963. 26 *p.*

This attractive 26-page report from Toronto's Hospital for Sick Children includes ten illustrations and diagrams, and six statistical tables. It is of interest to groups and individuals concerned with the rehabilitation of patients with clefts of the lip and/or palate. The text is so readable that many laymen could follow the discussion, material and recommendations cited.

The statistical material available has been put to good use in the form of six tables which are readily interpreted. There are six excellent photographs illustrating before and after neo-natal treatment of the maxillary segments prior to lip closure. The Surgical and Orthodontic Services are following a small group for neo-natal treatment, and while clinical results are encouraging, it is felt that there is insufficient data as yet to assess orthodontic and speech results. The vast bulk of patients receive the first phase of orthodontic care at age seven, and the final phase of orthodontic and prosthetic treatment is left until age eighteen or nineteen. The Speech Therapy Service reports that by "delaying or suspending treatment until a period when the child would gain more from it and require fewer sessions" and by "recognizing sooner the indications that a child needs surgical help in order to achieve acceptable speech," that they are able to gain maximum benefits for the child, and at the same time have indirectly increased the number of children for speech therapy. A study is described which shows that the number of speech disorders in both unilateral and bilateral groups is higher in children with a narrow maxilla, opening in the hard palate or with dental malocclusion, than in those who have poor velo-pharyngeal closure. Psychometric retests of 50 patients who had received successful therapy, showed an improvement in their I.Q. The report also points out that there are now very few cases of hearing defects sufficient to be a handicap. Recommendations are made to use electronic or mechanical data processing machines for future studies of a similar nature. Team co-operation between members of the various services is apparent throughout the report. It is delightful to see a recommendation coming from the Surgical Service suggesting that an orthodontist be sent to observe neo-natal treatment clinics in England and Germany. This reviewer would hope this might include visits to Dr. McNeil of Glasgow, and Dr. Dryer of Witwatersrand University in South Africa.

H. T. Oliver

additions to the library

AMERICAN DENTAL ASSOCIATION. Accepted dental remedies. Ed. 29. 1964. 220 p.

ANDERSON, D. J. ed. Sensory mechanisms in dentine. Proceedings of a symposium held at the Royal Society of Medicine, London, September 24, 1963. New York, Pergamon Press, 1963. 141 p. Mimeo. $4.95.

BLUM, R. H. The management of the doctor-patient relationship. Toronto, McGraw-Hill, 1960. 304 p. $9.80.

CHARRON, K. C. Health services, health insurance and their inter-relationship; a study of selected countries by Dr. K. C. Charron, Director of Health Services, Department of National Health and Welfare, Ottawa, 1963. 311 p. Mimeo.

DILLE, J. M. Drug therapy for dentists with a special section on dental emergencies by John D. Gehrig. Chicago, Year Book Medical Publishers, Inc., 1963. 228 p. $6.25

EUROPEAN ORTHODONTIC SOCIETY. Report of the 38th Congress held at the University of Groningen, Holland, June 1962. 363 p. illus. $12.00

HARE, G. C. A guidance course in endodontics for clinical instructors and postgraduate students. University of Toronto Press, Faculty of Dentistry, 1963. 69 p. $2.00.

INTERNATIONAL ACADEMY OF ORAL PATHOLOGY. Oral pathology in the child. A conference held at the Royal College of Surgeons, London, June 29, 1962. New York, 1962. 105 p. illus.

JARABAK, J. R. AND FIZZELL, J. B. Technique and treatment with the light-wire appliances. St. Louis, Mosby, 1963. 750 p. illus. $25.65

JELENKO, J. H. (J.F.) & CO., INC. Crown and bridge construction. Ed. 5. 1963. 158 p. illus. $2.50

MOSTELLER, J. H. Parallel pin gold castings. (Practical Dental Monographs, November 1963.) 31 p. illus.

OLIVER, T. H. Orthodontics for the patient with cleft lip and/or palate. (thesis—McGill University) Montreal, 1960.

SEGAL, A. H. Morphology and anatomy of the human dentition. Chicago, Year Book Medical Publishers, Inc., 1963. 107 p. illus. $8.35

THE ROYAL ARMY DENTAL CORPS. Manual training for dental technicians. London, Her Majesty's Stationery Office, 1963. 133 p. illus. $6.50.

TORONTO HOSPITAL FOR SICK CHILDREN. The Cleft Lip and Cleft Palate Research and Treatment Centre. Second report 1960-62. The Research Institute. The Hospital for Sick Children, Toronto, Canada, 1963. 26 p. Mimeo.

TORONTO UNIVERSITY. FACULTY OF DENTISTRY. Lecture notes in paedodontics. Published by the Department of Paedodontics, 1963. 141 p. Mimeo. $4.95.

U. S. WALTER REED ARMY INSTITUTE OF RESEARCH. DIVISION OF DENTISTRY. Oral diagnosis and therapeutics syllabus. Washington, D.C. 612 p. Mimeo.

in memoriam

WILLIAM FAWCETT ADAMS—Dr. W. F. Adams of Toronto died on July 24, 1963. He was 88. Dr. Adams was born in Toronto in 1874. He graduated from the Royal College of Dental Surgeons of Ontario in 1896 when he went to China where he practised and did missionary work. In 1946 he was made a life member of the Royal College of Dental Surgeons of Ontario.

HERBERT WESLEY BAKER—Dr. H. W. Baker of Stratford, Ontario, died on January 4, 1964. He was 88. Dr. Baker was

born in Stratford in 1875. He received his early education at the University of Buffalo and graduated from the Loyola University Dental School, Chicago, in 1902. Following graduation he practised in Chicago until 1905 and returned to Stratford in 1906 where he was connected with the Stratford General Hospital. He was made a life member of the Royal College of Dental Surgeons of Ontario in 1956. Dr. Baker is survived by two daughters, Mrs. B. Cummer of Hamilton and Mrs. J. Francis of Florida, and four grandchildren.

THEODORE WILLIAM ELLIOTT—Dr. T. W. Elliott of Toronto died on January 13, 1964. He was 84. Dr. Elliott was born in Brantford, Ontario, in 1879. He graduated from the Royal College of Dental Surgeons of Ontario in 1904 and in 1954 was made a life member of the college. Besides his wife, Martha Jane, Dr. Elliott is survived by a daughter, Mrs. Ross McGillawee, and two sisters, Mrs. John Kerr and Mrs. Grace Sheppard, both of Port Huron, Michigan.

ALPHONSE MORIN—Le Dr A. Morin de Montréal, âgé de 62 ans, est décédé en janvier, 1964. Le Dr Morin était né à Montréal en 1901 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1927.

ZAY MORRIS—Dr. Z. Morris of Vanderhoof, British Columbia, died on January 11, 1964. He was 71. Dr. Morris was born in Kempt Shore, Nova Scotia, in 1892. In 1916 he graduated from Northwestern University, Chicago, and in 1956 he registered in British Columbia.

JOSEPH EARLE NIXON—Dr. J. E. Nixon of Westview, British Columbia, died on December 31, 1963. He was 58. Dr. Nixon was born in Winnipeg in 1905. He graduated from North Pacific Dental College, University of Oregon, in 1905. Surviving Dr. Nixon are his wife, one son and one daughter.

HAROLD KERR RICHARDSON—Dr. H. K. Richardson of Toronto died on January 8, 1964. He was 71. Dr. Richardson was born in Toronto in 1892 and graduated from the Royal College of Dental Surgeons of Ontario in 1916. During World War I he served as a captain with the Canadian Army Dental Corps. From 1919 until 1962 he was a clinician on the staff of the Toronto Department of Public Health. Dr. Richardson is survived by his wife, Muriel; two sons, William Harold and Thomas Bruce; and one brother Gordon W. of Hamilton.

LAURIER RIVARD—Le Dr L. Rivard de Gentilly, P. Québec, âgé de 38 ans, est décédé en janvier 1964. Le Dr Rivard était né à Gentilly en 1925 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1951.

JAMES GORDON WALKER—Dr. J. G. Walker of Burlington, Ontario, died on January 5, 1964. He was 68. Dr. Walker was born in 1895 and graduated from the Royal College of Dental Surgeons of Ontario in 1924. Besides his wife, Bessie, Dr. Walker is survived by one son, William E. of Burlington, and three sisters and three brothers.

How will you pay for continuing office expenses when you are ill or otherwise disabled? Through office overhead expense protection, of course. More than 2,000 dentists are now enrolled in a group office overhead expense protection plan offered by Canadian Dental Association Pension and Insurance Plans. If you want this protection write now to C.D.A. Pension and Insurance Plans, 2249 Yonge Street, Toronto 7, Ontario.

announcements

CANADIAN DENTAL ASSOCIATION			FÉDÉRATION DENTAIRE INTERNATIONALE	
1964	Edmonton	June 28-July 1	San Francisco	November 7-14
1965	Quebec City	May 30-June 2	Vienna	June 26-July 3
1966	Halifax	June 12-15	Israel	
1967	Toronto	May 14-17	Paris	

FUTURE EVENTS

Date	*Function*	*Location*	*Officer*	*Address*
Mar. 21-31, 1964	Fourth Asian-Pacific Dental Congress	Singapore and Malaya	Dr. B. B. Erāna	P.O. Box 373, Manila, Philippines
April 4-5, 1964	Saskatchewan Dental Association	Saskatoon, Saskatchewan	Dr. F. R. Smith	606 Canada Bldg., Saskatoon, Sask.
May 9, 1964	Canadian Society of Dentistry for Children, Ontario Chapter	Royal York Hotel, Toronto	Dr. G. E. Burgman	1893 Main Street, Niagara Falls, Ont.
May 10-13, 1964	Ontario Dental Association	Royal York Hotel, Toronto	Mrs. W. C. Durham	230 St. George Street, Toronto 5, Ont.
May 21-23, 1964	British Columbia Dental Association	Queen Elizabeth Theatre, Vancouver	Dr. W. R. Upton	325-925 West Georgia Street, Vancouver, B.C.
21-23 mai, 1964	Association dentaire de la province de Québec	Ste-Marguerite du Lac Masson	Dr. P. A. Lachance	281 St-Georges, St-Jérome, P. Qué.
May 25-29, 1964	17th Australian Dental Congress	Perth, Western Australia	Dr. K. F. Henderson	242 St. George's Terrace, Perth, Western Australia
18-24 juin, 1964	Semaine odontologique internationale	Porte de Versailles, Paris, France	M. Jacques Charon	12 rue du 4 Septembre, Paris 2e, France
June 25-28, 1964	Anglo-Continental Dental Society	London, England	Dr. R. O. Leaver	76 Heaton Park Drive, Bradford 9, England
June 28, 1964	Canadian Society of Dentistry for Children	Macdonald Hotel, Edmonton	Dr. C. R. Castaldi	Faculty of Dentistry, University of Alberta, Edmonton, Alta.
June 29-July 3, 1964	British Dental Association	London, England	Dr. J. N. Peacock	13 Hill Street, London, W.1, England

POSTGRADUATE AND REFRESHER COURSES

ALABAMA—May 25-27, 1964—Surgical Anatomy of the Head and Neck
COLUMBIA—May 25-29, 1964—Dentistry in Cerebral Palsy
MICHIGAN—May 4-6, 1964—Current Concepts of the Use of Amalgam
MICHIGAN—May 4-8, 1964—Precision Attachment Bridgework
MICHIGAN—May 4-15, 1964—Complete Denture Prosthesis
MICHIGAN—May 4-15, 1964—Endodontics
MICHIGAN—May 7-8, 1964—Silicate Restorations
MICHIGAN—May 11-12, 1964—Comprehensive Paedodontics
MICHIGAN—May 11-22, 1964—Periodontics
MICHIGAN—May 25-29, 1964—Dental Materials
NORTHWESTERN—May 11-12, 1964—Current Concepts in Operative Dentistry
NORTHWESTERN—May 11-15, 1964—Oral Surgery in General Practice
NORTHWESTERN—May 18-20, 1964—Current Concepts of Occlusion
OHIO—May 4-6, 1964—Oral Surgery
OHIO—May 11-13, 1964—Modern Concepts in Operative Dentistry
OHIO—May 18-22, 1964—Paedodontics and Interceptive Orthodontics
TEMPLE—May 6-8, 1964—Clinical Management of Occlusion
TEMPLE—May 9, 1964—Full Denture Seminar
TEMPLE—May 11-13, 1964—Immediate Full Dentures and Distal Extension Partials
WESTERN RESERVE—May 9-11, 1964—Periodontics
WESTERN RESERVE—May 22-24, 1964—Parallel Pin Technique

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L'influence de la morphologie des dents et des obturations sur les lésions de la membrane péridentaire: propagation de l'inflammation

par Gérard Bergeron, D.D.S., Québec, P.Qué.

La forme et la position exactes des dents sont d'une extrême importance dans la préservation de la gencive comme aussi dans la protection de chaque dent. Les imperfections anatomiques de tout ordre peuvent initier des processus pathologiques dans les structures entourant la dent. Notons tout d'abord les altérations dans la forme de la dent, la rétention alimentaire et les irritations mécaniques causées par les obturations. Toutes ces imperfections peuvent favoriser la gingivite et la destruction de l'os alvéolaire sous-jacent pour produire une maladie péridentaire typique d'un caractère localisé.

Imperfections dans la forme anatomique de la dent

Les imperfections dans la forme et dans la position des dents peuvent amener la rétention alimentaire et, par la suite, être la cause de lésions gingivales.

FIGURE 1 Incisive sans talon lingual, favorisant la rétention alimentaire et la formation de clapier lingual. (D'après Goldman et Cohen: Periodontia; Mosby.)

FIGURE 2 Molaire avec courbure exagérée. Ce contour exagéré favorise aussi la stagnation des matières étrangères autour des surfaces gingivales provoquant ainsi une hyperémie chronique de la gencive.[3] (D'après Wheeler: Textbook of dental anatomy and physiology; Saunders.)

Contours buccal et lingual. — Les contours de la dent, sur ses surfaces buccales et linguales, sont importants en ce qu'ils protègent la gencive marginale.

Quand la courbure de la dent est anormale ou a été détruite (par la carie) ou quand la courbure est absente ou trop légère, la nourriture s'entasse avec force contre la gencive marginale amenant une récession du tissu gingival et conséquemment la perte de l'attachement épithélial. Les dents aux contours plats montrent une évidence d'inflammation gingivale.

FIGURE 3 Gauche: aspect occlusal montrant les convexités, les sillons et les crêtes marginales. Ces formations anatomiques empêchent la rétention alimentaire et sont telles que la pression requise pour triturer les aliments est minime, mais efficace. Droit: diagramme montrant la transformation des convexités en facettes obliques et la disparition des sillons et des crêtes marginales. Ici la rétention alimentaire est favorisée et la pression requise pour la trituration des aliments est augmentée, et moins efficace.[4] (D'après Glickman: Clinical periodontology; Saunders.)

Les incisives supérieures sans talon lingual (Figure 1) favorisent la rétention alimentaire puis, la formation de clapiers linguaux.[1]

Comme l'indique la figure 2, si la courbure de la dent est trop prononcée, une autre complication peut survenir: la gencive, étant protégée à l'excès, perd son tonus.

Surface occlusale. — Il existe un aspect très particulier de la transformation de la surface occlusale, celui de l'usure occlusale des dents (Figure 3).

L'anatomie est modifiée à un point tel que les sillons, les crêtes marginales et les plans inclinés sont disparus presque en totalité. Les convexités anatomiques normales sont remplacées par des surfaces planes ou facettes obliques permettant à la nourriture de se coincer dans l'espace interproximal. L'usure occlusale a donc pour effet d'acheminer, de canaliser la nourriture entre les surfaces proximales, tandis que normalement les contours naturels de la dent devraient les en éloigner. Cela est aussi vrai dans les cas de cuspes trop longs qui agissent comme des coins à fendre le bois. Ces cuspes tendent à écarter les dents du maxillaire opposé, permettant ainsi la rétention alimentaire.

Il appartient à Hirschfeld[2] d'avoir étudié ce point particulier de l'usure occlusale en regard de la rétention alimentaire qu'il considère comme pouvant être la cause d'inflammation péridentaire marginale aiguë aussi bien que chronique. Il observa que là où l'usure occlusale est uniforme et dans un plan horizontal, la nourriture s'entasse moins que là où les dents sont usées irrégulièrement et dans un plan oblique sur leurs surfaces occlusales. L'usure se voit non seulement sur les surfaces occlusales, mais aussi sur les surfaces proximales. Occasionnellement, les dents ne montreront pas d'usure occlusale excessive, mais les contacts mésial et distal entre les dents adjacentes seront anormalement perdus par usure des surfaces interproximales ou par perte de structure de support. Cela permet un léger mouvement quand les dents viennent en occlusion.

Surface de contact proximal. — Parmi les caractères anatomiques, les surfaces de contact proximal sont ceux qui méritent le plus notre attention. Leur destruction par la carie, leur absence par l'extraction ou leur mauvaise location par la mauvaise position des dents favorisent la rétention alimentaire.[3] Tout contact ouvert invite la rétention alimentaire dont la compression occasionne l'inflammation gingivale. Le tissu gingival, qui normalement remplit les espaces interdentaires, devient hyperhémié et la gingivite s'en suit. Cette hyperhémie active peut être suivie par des processus dégénératifs ultérieurs à moins qu'elle ne soit réprimée. Le résultat final est habituellement une destruction complète des tissus, y compris la destruction de l'os alvéolaire et la perte possible d'une dent ou plus.[3]

Les dents antérieures adjacentes, avec des surfaces proximales planes, ont un mauvais contact, permettant à la nourriture de s'y coincer et de s'entasser contre la gencive. Les dents postérieures en contact avec des crêtes marginales inégales sont aussi un facteur potentiel, spécialement si la dent du maxillaire opposé agit comme poinçon.[1]

Le même phénomène se produit si les espaces interdentaires sont exposés par l'ouverture occlusale permanente, le support proximal étant détruit par la carie.[4]

Il semble donc évident que les points de contact évitent les lésions gingivales en prévenant l'accumulation de nourriture.

Rétention alimentaire

La rétention alimentaire se distingue de la simple accumulation de débris de nourriture sur les dents et les gencives. Elle est cette force mécanique qui presse toute matière étrangère contre la gencive, créant une source constante d'irritation. La profession dentaire est redevable à Isador Hirschfeld d'avoir arrêté son attention à ce problème de la rétention alimentaire qu'il définit: "The forceful wedging of food through occlusal pressure into the interproximal spaces."[2] Hirschfeld étend ce terme à la rétention alimentaire dans la crevasse gingivale buccale ou linguale qu'il distingue de celle causée par l'action de la langue. "This term may also be applied to a similar, although much less frequent, forcing of food into the buccal or lingual gingival crevices, but should be differentiated from the less forceful action of the tongue and the buccal parietes in deposing food in these spaces and crevices. In the latter action, the food produces no mechanical injury and can be easily removed by ordinary brushing and rinsing."[2]

Ainsi donc, cette compression de la nourriture contre la gencive sera pour celle-ci une cause d'irritation. De l'avis de Coolidge,[5] la rétention alimentaire entre deux dents voisines est l'une des causes les plus communes de gingivites et de blessures à la gencive. En premier lieu, la crête septale est compressée par le refoulement de la nourriture logée entre les contacts des deux dents adjacentes. A un repas subséquent, le même phénomène se reproduisant, la crête septale se trouve plus profondément compressée de telle sorte que le tissu septal entre les deux dents adjacentes fait saillie

dans les embrasures interproximales sur les surfaces buccales et linguales. Ces masses de tissu gingival faisant saillie présentent des surfaces rouges et enflammées qui sont douloureuses au toucher et saignent à la moindre provocation. A ce stage, le patient a perdu de vue la cause, qui est la pression de la nourriture sur la surface interproximale, mais l'hypersensibilité du tissu le porte à attribuer la cause à quelque chose d'autre, et aucun effort n'est fait pour enlever la nourriture entre les dents.

Black,[6] dans son étude des lésions gingivales, nous a lui aussi laissé ses observations sur la rétention alimentaire: "By far the largest number of cases occur as a result of injuries to the gingivae, and of these, the injuries to the septal tissue as a result of the impaction of food between the teeth in any of the many conditions cited, are both the most frequent and the most serious. In many cases, the irritation caused by the presence of the impacted food, which is often invaded by saprophytic organism, plays a part in establishing and maintaining the inflammation. In some cases, the impaction may of itself result in the beginning detachment of the peridental membrane at the cemental line. More frequently a suppuration occuring in the inflamed gingivae is carried into the deeper tissues by the lymphatic vessels."[6]

Irritations mécaniques causées par les obturations

Quand elles sont disposées dans leur alignement normal, les dents, par la convexité de leurs surfaces et leur contact ferme, protègent les tissus mous avoisinants. Conscient de cette importance de la forme de la dent, le dentiste devra s'efforcer de la sauvegarder ou de la restaurer correctement, évitant ainsi d'initier, de maintenir ou d'accroître toute maladie péridentaire.

D'après Balint Orban et Frank M. Wentz,[7] une restauration dentaire est couronnée de succès si elle remplit les exigences mécaniques et biologiques. La gencive est attachée à la dent par les fibres de tissu conjonctif et par l'attachement épithélial. La location de cet attachement fibro-épithélial dépend normalement de l'âge de l'individu. Chez les jeunes, il est entièrement sur l'émail; chez les vieux, sur le cément. L'opérateur devra essayer de trouver un compromis entre l'extension gingivale de sa cavité et l'histologie de l'attachement épithélial. Il devra éviter toute lésion qui pourrait causer une récession prématurée de la gencive. Ou bien la cavité devra être portée franchement sous la partie libre de la gencive, selon les exigences biologiques, ou bien elle devra s'étendre plus ou moins gingivalement, selon les exigences mécaniques.

Toutes les obturations qui s'étendent sous la gencive marginale devront être bien polies afin de diminuer l'irritation. Il est généralement accepté que les restaurations sous-gingivales non polies causent une irritation plus grave que celles qui sont bien polies.

Waerhaug[8] fit des expériences pour déterminer si une surface sous-gingivale franchement rude agit comme un irritant permanent. Son expérience confirme mais ajoute aux expériences cliniques antérieures: les restaurations rugueuses causent une irritation gingivale, non par la rudesse "per se," mais par la rétention de la plaque bactérienne que la rugosité de la surface favorise. En conséquence, les restaurations insérées sous la crête gingivale devraient être bien polies.

De plus, le dentiste devra être conscient des effets néfastes des obturations ayant des surplus gingivaux. Ils sont importants en ce qu'ils peuvent causer des gingivites. Là où ils touchent les tissus mous gingivaux, l'inflammation et l'hyperplasie apparaissent habituellement.[5] Les surplus gingivaux sont des sources communes de maladies gingivales. En plus d'être un irritant mécanique, ils constituent une zone idéale pour l'accumulation des débris de nourriture et la multiplication des bactéries qui augmentent les produits métaboliques toxiques.[4]

L'inflammation et l'hyperplasie de la gencive, causées par ces irritants mécaniques, diffèrent peu de la même condition décrite sous la compression de la nourriture. Une pression continue sur les tissus mous par n'importe quel corps rude est irritante et amène sous la compression une enflure et une hyperplasie ou une perte de tissu.[5]

Toute restauration artificielle devrait reproduire les convexités occlusales des dents, les crêtes, les sillons aussi bien que les embrasures interproximales.[5]

Les surfaces proximales au contour impropre qui négligent le ré-établissement des embrasures interproximales adéquates favorisent l'accumulation des débris de nourriture.[4]

Selon Obin,[4] les restaurations inadéquates, qui ne reproduisent pas les contours exacts buccal et lingual des couronnes, détournent la nourriture vers la gencive marginale, provoquant ainsi une inflammation. Si, au contraire, les restaurations coronaires tiennent compte de ces contours, la nourriture sera nécessairement déviée de la gencive marginale, ce qui empêche la rétention alimentaire.

Les contacts proximaux inadéquats ou improprement situés et la non reproduction de l'anatomie protectrice normale des crêtes marginales occlusales et des sillons mènent à la rétention alimentaire.

La rétention alimentaire, due à des contacts fautifs ou à un manque de contact là où des restaurations artificielles ont été faites, est plus fréquemment responsable de gingivites que les défauts et les formes anormales des dents naturelles.[5]

Irritation et inflammation gingivale

L'inflammation chronique de la gencive et du tissu péridentaire se produit par l'effet nuisible de certains facteurs locaux anatomiques, telles les imperfections anatomiques de la dent, la rétention alimentaire due à des contacts mauvais ou ouverts et les restaurations mal faites. Il en existe nombre d'autres. Notons, par exemple, les irritants chimiques ou l'accumulation dans le sac gingival de calculs dentaires et de microorganismes.

Toutefois, les microorganismes, qui deviennent un facteur subtil dans le maintien de la gingivite chronique, s'ils sont surajoutés dans le sac gingival déjà fort sujet à l'irritation constante par de tels facteurs, deviennent plus prolifiques et plus destructeurs pour les tissus.

A. Evolution

La réaction inflammatoire dans le tissu est progressive pénétrant les tissus plus profonds par des voies d'acheminement. Comme résultat, la crête de l'os alvéolaire se résorbe et il y a perte graduelle des fibres péridentaires principales. La fonction de la réaction inflammatoire est un moyen natural de localiser et de tenter d'éliminer l'irritant et ses produits. Cette réaction survenant dans le tissu superficiel de la gencive est classifiée comme "gingivite." Quand elle progresse plus profondément, entraînant la perte de l'os alvéolaire et des fibres principales du tissu péridentaire, c'est la "péridentaire," parfois apelée "péricémentite."

Gingivite. — Coolidge définit la gingivite: "An acute or chronic inflammation of the superficial periodontal tissues surrounding the cervical portion of the teeth."[5] Il fait remarquer aussi que l'inflammation gingivale qui l'accompagne se rencontre au stage chronique plus souvent qu'au stage aigu.

Il dit aussi que la gingivite est la première manifestation d'inflammation dans les tissus péridentaires superficiels. Le patient sent un léger malaise dans les premiers stages de la gingivite qui, généralement, est négligée jusqu'à ce qu'elle ait progressé suffisamment pour produire des dommages considérables au tissu de support. Bien que la gingivite, en elle-même, soit habituellement une forme légère d'inflammation, elle précède généralement des conditions pathologiques plus sérieuses dans les tissus de support. La gingivite ne dégénère pas toujours en périodontite

suppurative, mais, habituellement, la périodontite est précédée par la gingivite.

Périodontite. — Progressant en profondeur, la gingivite devient périodontite que Coolidge décrit: "An acute or chronic inflammation of the periodontal tissues."[5] Les poches péridentaires suppurantes sont une conséquence des changements inflammatoires dans le périodonte. Alors, la crête de l'os alvéolaire devient impliquée et il y a écoulement de pus du sac gingival.

De l'écoulement de pus, qui est l'une des caractéristiques de distinction des périodontites suppuratives, peut résulter une inflammation chronique siégeant plus profondément et associée à la dégénération des tissus péridentaires; c'est la périodontite complexe, habituellement aggravée par des troubles constitutionnels. L'écoulement de pus peut aussi être l'expression d'une condition inflammatoire superficielle, purement locale; c'est la périodontite simple, ou marginale, qui nous intéresse plus particulièrement.

Périodontite marginale. — C'est la forme la plus simple d'inflammation péridentaire associée à une condition non hygiénique de la bouche. Elle est une inflammation progressive chronique le plus fréquemment causée par les facteurs locaux irritants, que nous avons signalés et qui abaissent la résistance de la gencive à l'infection buccale. L'irritation cause l'inflammation des tissus sous-jacents: la crête gingivale devient enflée. A cause de cette enflure des tissus, le sac gingival devient plus profond, permettant une plus grande accumulation de calculs et de débris de nourriture; une infection ultérieure s'en suit. D'un état enflé et œdémateux des tissus gingivaux résulte une augmentation de l'exsudat qui s'accumule dans le sac gingival, puis s'étend et se propage vers les tissus sous-jacents.

B. Extension

Les opinions diffèrent en ce qui regarde le mode de propagation de l'inflammation vers la membrane péridentaire et l'os alvéolaire. Où et comment l'inflammation de la gencive progresse-t-elle dans les structures de support de la dent? Les réponses à cette question peuvent être divisées en différents groupes.

Un premier groupe de chercheurs considère les canaux lymphatiques de la membrane péridentaire comme la voie de l'inflammation. A ce groupe appartiennent Talbot, Black, Fish et Merrit. Leur conception est indiquée par des termes tels que, "péricémentite suppurative chronique," ou "périodontite." Black définit la péricémentite suppurative chronique: "a chronic infection of the supporting structures of the teeth."[6] Voici, selon lui, la raison de l'extension de la gingivite dans les structures osseuses de support: "The lymphatics within the periodontal membrane form the natural route for the movement of infection. These vessels accompany the blood vessels from the gingivae through the peridental membrane to the apex of the root, also through the Haversian canals in the bone."[6]

Talbot, faisant des expériences sur des chiens, nota: "When simple gingivitis becomes chronic, the inflammation extends to the surface of the periodontal membrane. Necrosis occurs at the surface. In the deeper tissues that have become inflamed pus cells also are found."[10] Il croyait que l'infiltration des cellules inflammatoires s'étendaient en profondeur par les capillaires sanguins dans le tissu sous-muqueux, près du périoste.

D'autre part, Fish affirme: "The irritant . . . is carried down the lymphatic vessels. These run under the epithelium lining the gingivae through and down the periodontal membrane on their way to the lymph glands. The cellular infiltration spreads along the course of these vessels. This condition of chronic lymphangitis is shown to be responsible for the sequence of events recognized clinically as chronic gingivitis.[11]

Enfin Merrit soutient: "Chief among the clinical symptoms of periodontoclasia are inflammatory reactions in the gingivae and pericementum."[12]

Dans un deuxième groupe, Noyes et Coolidge endossent la même conception que ceux du groupe précédent, avec la réserve que, occasionnellement, l'inflammation s'étend dans les tissus sous-jacents par la surface externe de l'os alvéolaire ou par les espaces médullaires de l'os.

Noyes distingue entre les infections gingivales associées à des dépôts de tartre de celles qui ne le sont pas. Dans le cas de gingivites non associées à des dépôts de tartre, il dit que l'infection suit "the lymphatic capillaries from the connecting-tissue papillae under the epithelium lining the gingival space which proceed toward the apex, passing through the fibers of the ligamentum circulare; and, between the bone and the cementum in the peridental membrane, there is inflammatory reaction, beginning in the interfibrous spaces and proceeding in the way previously described. There is destruction of bone on the peridental membrane side of the alveolar process, and formation of new bone on the periosteal side."[13]

Coolidge démontre que l'infiltration se propage dans le tissu le long des fibres péridentaires ou, exceptionnellement, le long du bord externe du procès alvéolaire: "The underlying tissue suffers from infiltration of round cells and leukocytes and soon inflammation spreads deeper down into the tissue along the periodontal fibers, or, along the outer border of the alveolar process.[14]

Un troisième groupe d'auteurs soutient que, dans la majorité des cas de gingivite, la membrane péridentaire est libre de réaction inflammatoire, alors que, dans des cas avancés, la membrane péridentaire peut être affectée. A ce groupe appartiennent Thoma, Goldman, Box et Kronfeld. Parlant de la membrane péridentaire, Thoma et Goldman affirment: "This structure is always free from inflammation."[15] Box établit que "An extension of the cellular infiltration into the medullary spaces of the supporting bone is constant. It is noteworthy, on the other hand, that in the periodontal membrane these marked cellular reactions are, as a rule, absent or slight except in advanced conditions."[16] Kronfeld résume ses observations sur la question en disant: "Because of the accumulation of irritating débris and calculus in the gingival crevices, the tissues respond with hyperemia and engorgement until, finally ulcers develop in the epithelial covering through which a purulent exudate is discharged. Gradually the inflammation progresses toward the alveolar margin, and inflammatory bone resorption takes place at the alveolar crest next to the superficial inflammation (marginal atrophy); the greater portion of the alveolar bone and periodontal membrane, however, remains intact."[17]

L'opinion de ce dernier groupe énonce que dans les maladies péridentaires destructives la membrane péridentaire est rarement, sinon jamais impliquée dans l'expansion de l'inflammation gingivale. C'était l'opinion la plus acceptée. Depuis, certains auteurs ont travaillé sur la question. Weinman, par ses découvertes, appuie cette dernière opinion. Il indique que l'inflammation d'origine gingivale suit le cours des vaisseaux sanguins: "The histological studies revealed the following findings: Chronic inflammation of the gingiva progresses, following the course of the blood vessels, into the periodontal membrane. Resorption of the alveolar crest from the gingival side leads to destruction, first, of the supporting alveolar bone and then the lamina dura. The fatty marrow is replaced by fibrous marrow."[18]

Pour la compréhension de la propagation inflammatoire, Weinman explique la distribution des vaisseaux sanguins. Selon lui, cette distribution des vaisseaux explique le cours suivi par l'exsudat inflammatoire.

Récemment, Macapanpan et Weinman[19] étudièrent l'influence des lésions marginales et du traumatisme occlusal sur la membrane péridentaire, en présence d'inflammation gingivale. Ils en arrivèrent à une double conclusion: (a) si la membrane péridentaire est soumise à des forces excessives (particulièrement, la tension), l'inflammation peut se répandre directement dans cette membrane; (b) si la

membrane péridentaire jouit d'une pression normale, l'inflammation suivra sa course habituelle dans l'os médullaire.

Des recherches encore plus récentes sur ce problème de l'extension de l'exsudat vers les structures de support, furent reprises par Goldman.[20] Il étudia des coupes mésiodistales et buccolinguales de quinze mâchoires humaines atteintes de maladie péridentaire. La voie de l'inflammation apparemment suit le cours des vaisseaux (drainage lymphatique) de la gencive aux structures sous-jacentes.

Interproximalement. — L'infiltration de la papille interdentaire progresse apicalement par les fibres transeptales et dans les espaces médullaires du septum interdentaire.

Buccalement et lingualement. — Les sections buccolinguales montrent d'abord la présence de cellules inflammatoires sous le sac gingival. Bientôt, l'exsudat inflammatoire s'étend le long du périoste, dans les structures plus profondes pour occuper toute la gencive attachée et parfois la muqueuse alvéolaire. Les cellules inflammatoires sont présentes entre les fibres transeptales dans la région de la crête alvéolaire et au-dessous, entre les deux sections de l'os.

Généralement, la membrane péridentaire n'est pas affectée par l'extension de l'inflammation gingivale et apparemment il n'y a pas d'extension directe à partir de la surface gingivale. L'entrée se fait latéralement par les ouvertures des espaces médullaires adjacents.

Toujours selon Goldman, relativement aux changements qui surviennent quand le périodonte est sujet aux lésions marginales et au traumatisme occlusal, les deux processus sont simultanés mais indépendants. Malgré l'inflammation gingivale marquée, il n'y a pas d'évidence d'exsudat inflammatoire dans la membrane péridentaire.

Goldman résume en disant: "The course of the inflammatory infiltrate in marginal periodontitis consists of apical progression into the alveolar processes (buccal, interdental and lingual) and into the gingival tissue itself. Occasionally focal accumulations of inflammatory cells are found in the crestal region of the periodontal membrane. The changes which occur when the periodontium is subjected to both marginal injury and occlusal traumatism are independent."[20]

Comme on peut le constater, les résultats de ces derniers chercheurs sont vagues et assez controversés. Où et comment l'exsudat se propage-t-il aux structures sous-jacentes? La réponse à cette question ne semble pas encore définitive. Les études ont été nombreuses dans le passé. Un grand pas a donc été fait pour connaître ce processus de propagation de l'inflammation et l'on peut croire que des recherches éventuelles pourraient apporter une solution définitive à la question. Alors, connaissant parfaitement le processus, on pourra peut-être orienter de façon plus précise et plus efficace le traitement des maladies péridentaires.

C. Perte osseuse associée à l'extension de l'inflammation gingivale

Le point difficile du problème de ces maladies péridentaires destructives chroniques repose sur la nature des changements qui surviennent dans l'os alvéolaire. Les changements pathologiques dans les autres tissus du périodonte n'en sont pas moins des points importants dans l'ensemble de ce processus de la maladie péridentaire destructive chronique. En dernière analyse, c'est la destruction de l'os alvéolaire qui est responsable de la perte des dents.

L'inflammation chronique est la condition locale communément responsable de la perte osseuse dans les maladies péridentaires. L'inflammation envahit l'os par extension de la gencive.

Plusieurs hypothèses ont été avancées pour expliquer le mécanisme par lequel l'inflammation produit la destruction de l'os Glickman,[4] pour sa part, énonce que l'extension progressive de l'inflammation est accompagnée par l'amincissement et

la destruction des travées osseuses et une réduction subséquente dans la hauteur de l'os supportant la dent.

Les structures de support ainsi affectées montrent la formation d'une poche profonde, une inflammation gingivale, une ulcération, une formation de pus et, en dernière analyse, une réduction marquée dans la hauteur de l'os alvéolaire. Le processus ayant évolué depuis longtemps, la perte osseuse sera considérable au point que la dent sera fortement ébranlée et sa perte, à peu près certaine. A son tour, la perte d'une dent peut devenir un facteur très important dans la destruction des structures péridentaires restantes, car elle cause un bouleversement sur le plan occlusal et tend à surcharger les dents restantes. Elle change souvent la relation occlusale, car le déplacement survient habituellement. Si les dents migrent mésialement, toute surcharge est souvent suffisante pour amener la perte des autres dents.

Conclusion

Il est facile d'imaginer que de tels délabrements pourraient être évités, eu égard à la coopération dentiste-patient. Le patient, soucieux de son hygiène buccale, consultera son dentiste. Ce dernier, conscient de l'éducation qu'il peut prodiguer à son patient, lui montrera les conséquences néfastes qui pourront survenir s'il persiste à garder des dents dont l'anatomie a été altérée par des causes quelconques: carie, usure, mauvais brossage, mauvaises restaurations, etc.

Par contre, le dentiste, dans les restaurations qu'il effectuera éventuellement, devra s'efforcer de donner à la dent ses contours normaux tout en respectant son harmonie avec les dents restantes, s'il veut garder intacte la membrane péridentaire et les structures avoisinantes.

Le dentiste, qui est le médecin buccal de ses patients, "en traitant la bouche comme une unité, s'élève au-dessus de l'artisan qui remplace simplement les dents ou les parties de dents," comme le dit très justement Topazian.[21]

Summary

This article describes two aspects of periodontal disease: predisposing factors in gingival inflammation and dissemination of the inflammatory process from the gingival to the periodontal membrane and the alveolar process.

Factors that predispose to gingival inflammation include morphology of the teeth and their contact areas (food impaction), trauma from dental operations, and overhanging margins of improperly contoured restorations.

There are three schools of thought regarding the manner of inflammatory propagation: (1) via the lymphatics and capillaries; (2) via the lymphatics, capillaries, external surfaces and medullary spaces of bone; and (3) spontaneous pathological change in bone and periodontal membrane without prior inflammation in the gingiva. Adherents of the first two schools postulate a direct relationship between gingival disorders and pathological changes in the deeper tissues. Those who incline to the latter school fail to see any relationship between inflammation at these two levels.

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Etude sur la moyenne du degré d'ouverture de la bouche chez l'adulte normal des deux sexes

par Pierre Labrecque, D.D.S., Coaticook, P.Qué.

Le but de ce travail est d'établir des statistiques sur la moyenne d'ouverture de la bouche, compte tenu du sexe et de l'âge. Plus explicitement, il s'agit de prendre des mesures chez un nombre assez imposant de personnes, de compiler ces mesures et de les discuter.

Cette étude porte uniquement sur des sujets normaux ayant leurs dents naturelles, supérieures et inférieures, du moins à la partie antérieure.

Nous n'avons pas trouvé de littérature traitant de cette question.

Méthode de travail

L'instrumentation résumée à sa plus simple expression permet de réduire les possibilités d'erreurs, en diminuant le temps d'opération et les manipulations inutiles.

On élimine ainsi la fatigue du patient, qui entraînerait une fermeture graduelle et involontaire de la bouche; divers changements dans les mesures.

On utilise dans ce but, un compas avec crans d'arrêt et une règle millimétrée, pour transposer les mesures (Figure 1).

TABLEAU 1 Moyennes comparatives de l'ouverture de la bouche chez 520 sujets tant mâles que femelles.

Age	Femme (ouv. mm.)	Homme (ouv. mm.)
6-10	45	46
11-15	49	50
16-20	50	53
21-25	49.5	51
26-30	49	50
31-35	48	50
36-40	48	49.5
41-45	47.5	49
46-50	47	49
51-55	46	48
56-60	46	48
61-65	44	46
66-70	44	45

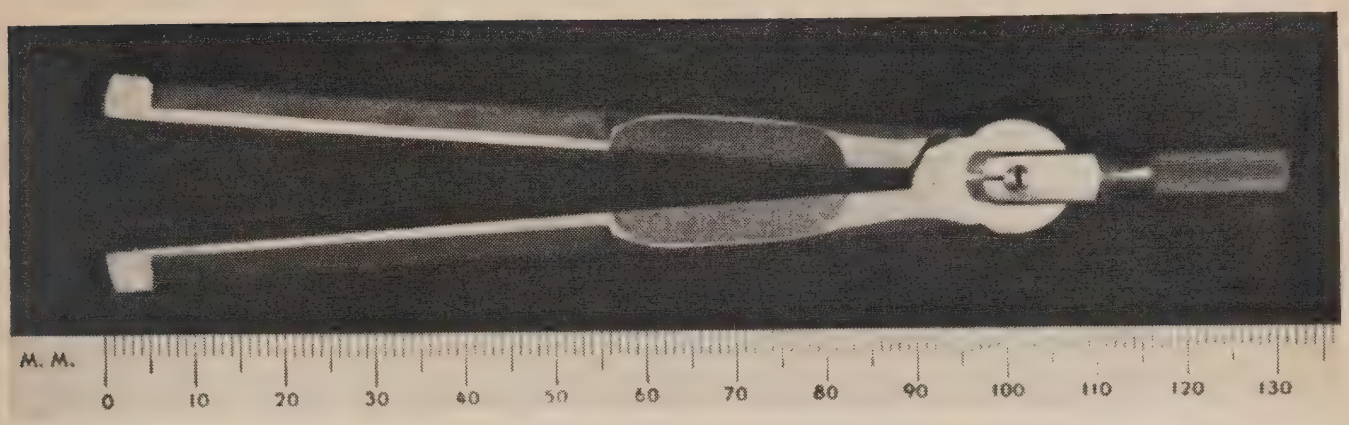

FIGURE 1

Nous avons placé le compas en bouche, en appuyant les leviers, l'un sur le plan incisif des dents antérieures du bas, l'autre sur le plan incisif des dents antérieures du haut, tout en avertissant le patient d'ouvrir à pleine capacité. Ensuite nous avons transposé sur la règle millimétrée, la hauteur d'ouverture, en prenant bien soin de ne pas mouvoir l'un ou l'autre bras de levier. Le compas était toujours placé sur les incisives centrales.

De même, pour fixer un certain point sur la longueur des leviers, le cran d'arrêt était essentiel, en ce sens qu'on l'appuyait toujours au lingual des dents.

Résultats

Les compilations de 520 sujets, tant mâles que femelles, nous ont permis d'établir certaines moyennes compara-

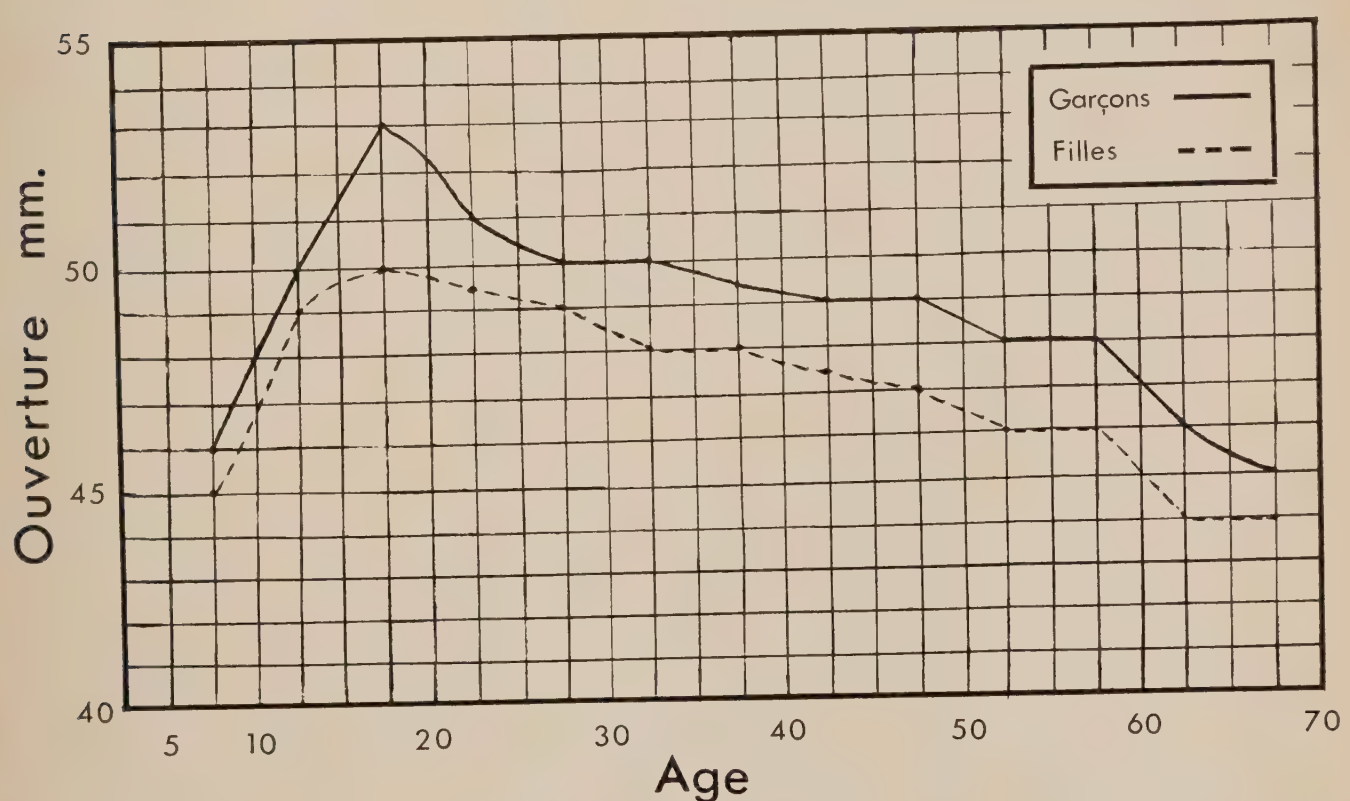

FIGURE 2

tives, dont nous donnons ici, le tableau statistique (Tableau 1).

Pour apprécier davantage ces résultats, disons, en résumé, que suivant les diverses étapes de la vie, l'ouverture de la bouche subit des variations suivantes:

—chez l'homme normal, de cinq à 20 ans inclusivement, d'après 50 sujets normaux, le degré d'ouverture équivaut à 49.5 mm.; de 21 à 40, chez 140 personnes, 50mm.; de 41 à 60, chez 80 personnes, 47.5mm.

—chez la femme, de cinq à 20 ans, chez 90 personnes, 48mm.; de 21 à 40 ans, chez 60 personnes, 48.6mm.; de 41 à 60 ans, chez 100 personnes, 46mm.

Conclusions

En marge de ces résultats, notons en premier lieu, le saut rapide qui s'effectue (dans les mesures) à partir du début de la période de croissance rapide et l'augmentation de l'ouverture tout au long de cette période, soit de 15 à 25 ans. Suit ensuite un certain niveau de stabilisation (ou à peu près) s'étendant de 25 à 40 ans. Puis une chute lente s'accentuant vers 60 ans.

En second lieu, on remarque une différence très faible, mais existante quand même entre les deux sexes. Chez la femme, l'ouverture est moindre de un à deux mm.

Summary

The author has measured the degree of opening of the mouth in 520 male and female persons. Measurements extended from the incisal edge of the lower central incisors to the incisal edge of the upper central incisors. The ages of the individuals ranged from six to 70 years. The average degree of opening was 48.26 mm. It increases to a maximum between 21 to 40 years of age; after that period, it decreases. The degree of opening in females was somewhat less pronounced.

2 rue Main

Soyez membre supporteur de la Fédération dentaire internationale

- pour établir des échanges avec des dentistes étrangers,
- pour vous tenir au courant des progrès de la science dentaire dans le monde entier,
- pour assister aux congrès annuels et aux congrès mondiaux dans des pays étrangers,
- pour avoir voix dans les délibérations internationales au sujet de votre profession, par le truchement de l'Organisation mondiale de la santé.

Les membres supporteurs de la Fédération dentaire internationale reçoivent, tous les trois mois, le *Journal dentaire international*, le *Bulletin de la F. D. I.*, un certificat et une carte de membre. La cotisation annuelle est de $15 (fonds canadiens); membre à vie: $200. On peut remplir la formule ci-jointe et la faire parvenir avec son chèque ou un mandat-poste au docteur D. W. Gullett, trésorier national de la Fédération, 234 rue St-Georges, Toronto 5, Ont.

Fédération Dentaire Internationale

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page éditoriale

Manifestation des dentistes de Belgique contre l'assurance-santé

On pouvait lire dans *La Presse* de Montréal, édition du 3 janvier 1964 (page 21), dans la section des nouvelles internationales, sous le titre "Contre la socialisation — 11,000 médecins belges menacent de faire la grève": 'Quant aux dentistes de Liège et de la province de Luxembourg, ils sont déjà en grève pour protester contre la nouvelle loi.'

Le dentiste du Canada peut se demander ce qui arrive à des confrères pour qui il a beaucoup de sympathie et d'un pays qui a beaucoup de traits communs avec le sien.

La livraison no 11 (septembre 1963) des *Feuillets d'information et de documentation* des jeunes chirurgiens-dentistes jette une certaine lumière sur ces troubles graves qui agitent la profession dentaire de Belgique.[1]

Le Sénat de Belgique a sanctionné, le ler août 1963, une loi qui avait été votée par la Chambre des Représentants, le 27 juin; cette loi avait comme objectif général de permettre à ses bénéficiaires d'accéder aux meilleurs soins de santé dans des conditions économiques favorables.

Les bénéficiaires de cette loi sont les travailleurs assujettis à la sécurité sociale pour laquelle un prélèvement est fait sur leur salaire ainsi que les personnes à leur charge. Il est prévu d'étendre son application, dans un avenir assez bref, aux travailleurs indépendants, aux fonctionnaires, au corps enseignant, aux étudiants, etc. En conséquence, cette loi règle les rapports entre les assurés sociaux et les distributeurs de soins.

Les professions s'occupant de santé sont en accord avec les principes de la loi; les modalités, comme toujours, font l'objet du litige entre les thérapeutes et le gouvernement.

Voyons brièvement ce en quoi l'application de la loi indispose les confrères belges.

1. Le corps médical est partout en minorité dans les organismes de gestion. — La loi crée un Institut national d'assurance maladie-invalidité. Au sein de cet Institut, le Conseil général ainsi que le comité de gestion des soins de santé sont composés de représentants en nombre égal: (a) des organisations représentatives des employeurs; (b) des organisations représentatives des travailleurs salariés; (c) des organismes assureurs (mutualités); (d) des médecins, pharmaciens, dentistes et gestionnaires d'hôpitaux.

2. Le gouvernement établit les honoraires. — Les rapports entre les bénéficiaires et les distributeurs de soins sont régis par une convention qui fixe notamment le montant des honoraires que le praticien de l'art de guérir s'engage à ne pas dépasser.

Un ticket modérateur de 25 pour cent, à la charge de l'assuré, est prévu pour les soins courants, parmi lesquels les soins dentaires. Le ticket modérateur est la partie des honoraires que le patient doit lui-même payer, sans remboursement par l'Etat. Cette condition est de nature à freiner des demandes pour des soins non indispensables. Par contre, les interventions chirurgicales et les prothèses sont remboursées à 100 pour cent aux bénéficiaires. Ce remboursement intégral pour

des interventions chirurgicales et des prothèses n'incite pas les patients à garder leur denture naturelle. C'est une politique contraire à celle de certains pays, notamment l'Angleterre, qui ne rembourse qu'une petite portion des honoraires de prothèse.

En outre, le ticket modérateur est supprimé pour les orphelins, les veuves, les pensionnés, les invalides et les personnes à leur charge. Mais cette suppression a lieu au détriment des praticiens qui doivent soigner cette catégorie d'assistés sociaux à un taux d'honoraires égal à 75 pour cent des honoraires normaux. Cette politique est acceptée au Canada, dans les provinces où le gouvernement défraie les déboursés occasionnés par le traitement des dents des assistés d'Etat par des dentistes de leur choix. Ces dentistes, plus précisément ceux d'Ontario, acceptent de réduire leurs honoraires de 25 pour cent, quand ils traitent des assistés d'Etat et quand leurs notes sont payées par un fonds créé par le Ministère de la santé et administré par un organisme dentaire.[2]

Le praticien qui, au 1er janvier 1964, n'aura pas adhéré à la convention, sera tenu d'appliquer aux assurés sociaux des honoraires inférieurs à ceux de la convention et fixés par arrêté royal. Cela veut dire que les dentistes sont libres d'adhérer à la convention. Mais cette liberté est fort diminuée, puisque les dentistes belges qui n'auront pas adhéré à ce système au 1er janvier 1964 recevront de l'Etat, quand ils traiteront des bénéficiaires, des honoraires moindres que ceux que recevront ceux qui auront signé la convention. Et rappelons-nous que cette loi éventuellement doit s'étendre à presque toutes les catégories de la population.

3. Les traitements sont contrôlés par un comité de gestion. — Chaque assuré social dispose d'un carnet de prestations. Le praticien doit indiquer dans le carnet de prestations les soins donnés ou les prothèses fournies. Il est également tenu de donner aux médecins-inspecteurs et aux inspecteurs administratifs tous les renseignements dont ils ont besoin et de leur communiquer tous les documents, y compris la correspondance. Le praticien doit, en outre, tenir régulièrement un dossier médical pour chaque bénéficiaire. Les soins doivent être donnés aux bénéficiaires dans les conditions les plus économiques, compatibles avec la nécessité du maintien ou de la restauration de leur santé. Le contrôle sera fait par des médecins-conseils nommés par les organismes assureurs eux-mêmes.

Ces modalités de la loi abolissent pratiquement le secret professionnel et la liberté thérapeutique. De plus, elles soumettent les dentistes à un contrôle exercé par des médecins.

4. Les praticiens qui ne se soumettent pas à cette réglementation sont passibles de sanctions. — Tout praticien qui contreviendrait aux dispositions de la loi peut encourir soit un refus d'intervention de l'assurance dans le coût des soins de santé pendant une période allant d'un mois à un an; soit une peine de prison pouvant aller jusqu'à un mois; soit une amende.

Voici une liste de commentaires venant de dentistes belges qui dépeint le climat dans lequel ils doivent exercer leur art depuis le 1er janvier 1964.

Les organisations professionnelles dentaires sont opposées à cette loi pour les raisons suivantes:

1. Le texte de la loi a été élaboré sans que ces organismes n'aient été consultés.

2. Dans les organismes de gestion, les représentants de la profession seront toujours en minorité.

3. Les conventions sont proposées sous la menace.

4. Le secret médical ne sera plus sauvegardé. En effet n'importe quel employé des mutualités peut consulter le carnet de prestations et connaître l'affection pour laquelle le malade a été traité. De plus, n'importe quel inspecteur, même non médecin, peut exiger tout document concernant le malade, même la correspondance qui aurait été échangée entre ce dernier et le praticien.

Tarifs d'honoraires pour traitements dentaires en Belgique.

Traitement	Praticiens conventionnés		Praticiens non-conventionnés	
	Tarif normal	Tarif spécial (pensionnés etc.)	Tarif normal	Tarif spécial
	Fr.	Fr.	Fr.	Fr.
Extraction	50	37.50	44	31.50
Obturation sans dévitalisation	100	75	88	63
Obturation avec dévitalisation (traitement complet)	156	117	137.50	95.80
Dentier complet haut et bas (28 dents)	2,000	2,000	1,760	1,760

1 franc belge = $ canadiens 0.02.

5. Les tarifs d'honoraires sont insuffisants pour permettre une médecine dentaire de qualité. Le standing de la profession sera incompatible avec sa mission et toute promotion scientifique deviendra impossible.

6. Les tarifs d'honoraires réduits pour les invalides, les veuves, les pensionnés et les orphelins instaurent "la médecine des pauvres." L'abandon du ticket modérateur pour cette catégorie d'assurés sociaux doit être supporté par la communauté nationale et non par les seuls praticiens de l'art de guérir.

7. En pratique, l'impossibilité dans laquelle se trouveront les praticiens privés de soigner les assurés sociaux est une atteinte au libre choix.

8. Les abus flagrants des cliniques dentaires mutualistes persisteront puisque le contrôle y sera fait par les médecins-conseils nommés par les mutualités elles-mêmes, qui seront juges et partie.

9. Depuis 1929, la stomatologie ne fait plus partie des études médicales. Le contrôle des soins dentaires par un médecin est donc un non-sens. La notion de dentiste-conseil doit être introduite.

10. Le praticien devra prescrire le médicament le moins coûteux et donner les soins les plus économiques. Ceci constitue une atteinte à la liberté thérapeutique.

A titre d'information, nous donnons ci-dessous quelques exemples qui permettent de fixer les idées sur les tarifs d'honoraires fixés par le gouvernement.

Les leçons que peut tirer la profession dentaire canadienne de ces tractations des dentistes belges avec leur gouvernement sont nombreuses. Elles peuvent se résumer dans trois considérations:

1. Il faut que chaque province établisse une liste d'honoraires qui soit factuelle et non seulement souhaitable ou minimum.

2. Il faut que chaque province établisse une corporation de services dentaires qui pourrait se charger d'administrer les services dentaires, dans l'éventualité de la mise en force d'un système d'assurance-santé.

3. Il faut que chaque province établisse fermement ses positions pour être en mesure de les discuter avec les autorités intéressées.

Ces leçons arrivent à une époque propice, puisque la Commission royale d'enquête sur les soins de santé est à la veille de produire son rapport au gouvernement canadien.

G. de M.

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2. L'Association dentaire canadienne. Délibérations, 1960. Annexe "A". Comité des Services dentaires de l'Ontario. p. 159.

On approuve le dépistage du cancer par les frottis

Les représentants de l'Association dentaire canadienne, les membres corporatifs de l'A.D.C. et les facultés dentaires, qui ont assisté à une séance spéciale sur le dépistage des cancers par la cytologie, ont unanimement approuvé cette méthode susceptible d'aider au dépistage et au traitement précoces des cancers de la bouche des patients dentaires. Cette séance a eu lieu à Montréal au cours de la 4ième Conférence annuelle des secrétaires des Collèges provinciaux, qui a duré du 2 au 4 décembre 1963.

Les délégués, après avoir entendu des experts, médecins et dentistes, décrire cette technique cytologique par frottis, ont proposé d'établir au plus tôt, dans chaque province, des centres dotés des disponibilités nécessaires pour détecter avec cette méthode des tumeurs malignes et de lancer une campagne d'éducation pour familiariser les dentistes avec cette technique. C'est l'Association dentaire canadienne, en collaboration avec l'Institut national du cancer du Canada, qui avait organisé cette conférence spéciale. Les conférenciers furent les docteurs H. C. Sandler, de Brooklyn, New York, qui est une autorité reconnue dans ce domaine et qui est chef des services dentaires du Veterans Administration Hospital de Brooklyn; J. A. Pedler, professeur de diagnostic buccal à la faculté dentaire de l'Université de Toronto et chef du service dentaire à l'Hôpital Général de Toronto; D. W. Thompson, pathologiste en pathologie chirurgicale et en cytologie de l'Hôpital Général de Toronto; W. G. Cosbie, directeur de la Fondation d'Ontario des recherches et du traitement du cancer; E. T. Tieman, assistant-directeur de l'Institut national du cancer du Canada; et C. H. M. Williams, professeur de périodontie à la faculté de chirurgie dentaire de l'Université de Toronto et président de la conférence.

La cytologie est utilisée depuis longtemps pour le diagnostic du cancer des voies urinaires et génitales; elle se base sur le fait que les cellules desquamées par des lésions malignes ou douteuses ont des caractéristiques particulièrement anormales. Cinq pour cent de tous les cancers se produisent dans la bouche ou sur les lèvres. Quatre-vingt-dix pour cent de toutes les tumeurs malignes sont des carcinomes et dix pour cent d'entre eux sont du type épithélial. Cette variété de tumeur se prête extrêmement bien à la cytologie par frottis et cette technique a fait ses preuves dans le dépistage précoce du cancer. On peut obtenir des frottis seulement quand on peut apercevoir visuellement des anomalies de la muqueuse. Les frottis n'éliminent pas les biopsies. On peut confirmer par une biopsie des frottis douteux ou positifs.

L'Association dentaire canadienne offre à ses membres, en plus d'autres avantages, un plan d'assurance-pension, un plan d'épargne-retraite, un plan d'assurance-hospitalisation, un plan d'assurance-groupe pour la maladie et les accidents et un plan de protection contre les frais fixes du cabinet. On écrit au Plan d'assurance-pension de l'A.D.C., 2249 rue Yonge, Toronto 7, Ontario.

Edmonton

LEGISLATURE

UNIVERSITY OF ALBERTA

63rd annual meeting
canadian dental association
june 28 - july 1, 1964

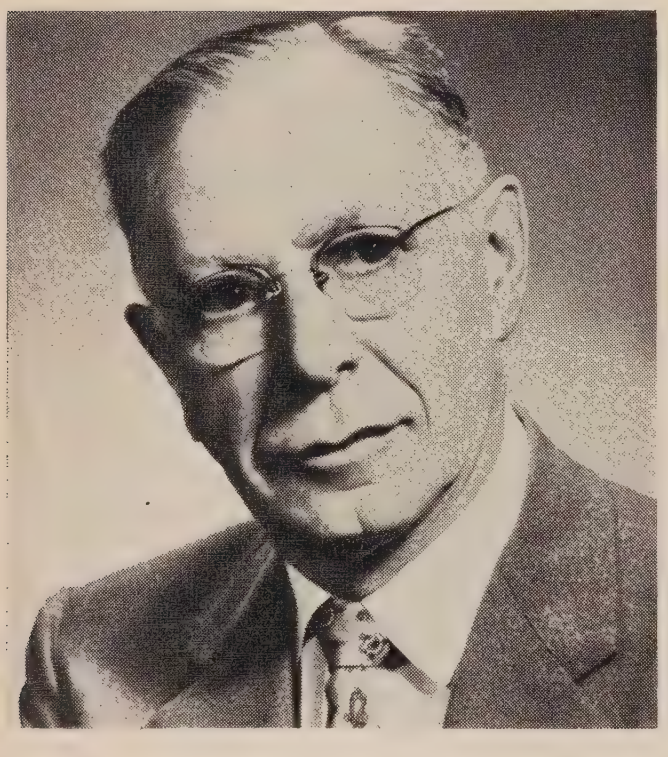
63e congrès annuel
association dentaire canadienne
du 28 juin au 1er juillet, 1964

The annual meeting of the Board of Governors of the Canadian Dental Association will be held at the Macdonald Hotel, Edmonton, beginning at 9.30 a.m. on Wednesday, June 24 and continuing through Saturday, June 27, 1964. The meeting is open to all members of the Association who are urged to attend and participate in the deliberations.

The national convention of the Canadian Dental Association will be held at the Macdonald Hotel, Edmonton, beginning Sunday, June 28 and continuing through Wednesday, July 1, 1964.

James Zimmerman, president

Don W. Gullett, secretary



James Zimmerman

La réunion annuelle du Conseil des Gouverneurs de l'Association dentaire canadienne aura lieu à l'Hôtel Macdonald, à Edmonton, du 24 au 27 juin 1964. Tous les membres peuvent assister à ces assemblées et prendre part aux délibérations; les dirigeants de l'Association les y invitent avec instance.

Le congrès de l'Association dentaire canadienne aura lieu au même hôtel et commencera dimanche, le 28 juin, pour se terminer mercredi, le 1er juillet.

James Zimmerman, président

Don W. Gullett, secrétaire

schedule of events • horaire du congrès

sunday evening june 28	dimanche, soirée le 28 juin
Musicale	réception
monday morning june 29	**lundi, matinée le 29 juin**
Registration	inscription
Table Clinics	cliniques de table
Essayists	conférences
Canadian Dental Association Luncheon	déjeuner de l'Association dentaire canadienne
monday afternoon june 29	**lundi, après-midi le 29 juin**
Essayists	conférences
Group Clinics	cliniques de groupe
Motion Pictures	pellicules cinématographiques
monday evening june 29	**lundi, soirée le 29 juin**
Barbecue	dîner en plein air: viande rôtie à la broche
tuesday morning june 30	**mardi, matinée le 30 juin**
Table Clinics	cliniques de table
Essayists	conférences
Alberta Government Luncheon	déjeuner offert par le gouvernement de la province d'Alberta
tuesday afternoon june 30	**mardi, après-midi le 30 juin**
Grieve Memorial Lecture	conférence du Mémorial Grieve
Canadian Dental Association Feature	colloque spécial de l'Association
Panel Presentation	dentaire canadienne
Group Clinics	cliniques de groupe
Motion Pictures	pellicules cinématographiques

tuesday evening
june 30

Fraternal Reunions
Tour of Alberta Game Farm

mardi, soirée
le 30 juin

réunions des confrères
visite à la ferme provinciale pour l'élevage de gibier

wednesday morning
july 1

Essayists
City of Edmonton Luncheon

mercredi, matinée
le 1er juillet

conférences
déjeuner offert par la ville d'Edmonton

wednesday afternoon
july 1

Television Clinics

mercredi, après-midi
le 1er juillet

cliniques à la télévision

wednesday evening
july 1

Canadian Dental Association President's Banquet and Ball

mercredi, soirée
le 1er juillet

Banquet et bal du président de l'Association dentaire canadienne

Meetings of C.D.A. Sections • Canadian Dental Association sections on dentistry for children (Canadian Society of Dentistry for Children), oral surgery (Canadian Society of Oral Surgeons), orthodontics (Canadian Society of Orthodontists), and periodontics (Canadian Academy of Periodontology) will also present scientific programs between June 28 and July 1, 1964.

Assemblées des sections de l'A.D.C. • Les sections de l'Association dentaire canadienne auront aussi des réunions scientifiques du 28 juin au 1er juillet, 1964. Ces sections sont les suivantes: Académie canadienne de périodontie; Société canadienne de chirurgie buccale; Société canadienne de dentisterie pour les enfants; Société canadienne d'orthodontie.

Macdonald Hotel

clinicians, essayists • cliniciens, conférenciers

cda feature panel presentation

Royal Commission on Health Services: recommendations affecting dental services

All members of the Association are urged to attend this highly important panel discussion.

colloque spécial de l'adc

Commission royale d'enquête sur les services de santé; la répercussion des recommandations sur les services dentaires.

Tous les membres de l'Association sont instamment priés d'assister à ce colloque: il y va de l'avenir de notre profession.

oral surgery

T. G. Ward, London, England

Mr. Ward is vice-president of the Odontological Section, Royal Society of Medicine; member of the South-East Metropolitan Regional Hospital Board; member of the American Society of Oral Surgeons; consultant oral surgeon to the Royal Navy, consultant oral surgeon to the British Ministry of Health; and interim secretary of the International Association of Oral Surgeons.

chirurgie buccale

T. G. Ward, Londres, Angleterre

M. Ward est vice-président de la section odontologique de la Société royale de médecine; membre du conseil régional des hôpitaux du sud-est métropolitain; membre de la Société américaine de chirurgie buccale; consultant en chirurgie buccale à la marine britannique et au Ministère de la santé, Angleterre; et secrétaire pro-tempore de l'Association internationale de chirurgie buccale.

dental materials

Evaluation of newer materials and techniques and factors affecting their clinical success

R. W. Phillips, Indianapolis, Indiana

Dr. Phillips is research professor of dental materials at Indiana University School of Dentistry. This presentation will cover biological considerations in the selection of dental materials; recent research on amalgam restorations including low-mercury techniques; clinical significance of marginal leakage of various restorative materials and the comparative ability of each to resist caries; importance of cavity varnishes and evalua-

matériaux dentaires

Evaluation des nouveaux matériaux et des nouvelles techniques: les facteurs inhérents à leur bon rendement en clinique

R. W. Phillips, Indianapolis, Indiana

Le docteur Phillips est professeur de recherches en matériaux dentaires à la faculté dentaire de l'Université d'Indiana. Cette communication traite des considérations biologiques qui influencent le choix des matériaux dentaires; des recherches entreprises sur les obturations en amalgame, couvrant les techniques qui utilisent le moins de mercure possible; la portée clinique du manque d'étanchéité des joints marginaux de diverses substances obturatrices et leur résistance à la carie; de l'importance des vernis protecteurs et de l'évaluation des substances utilisées pour reconstituer le fond des cavités;

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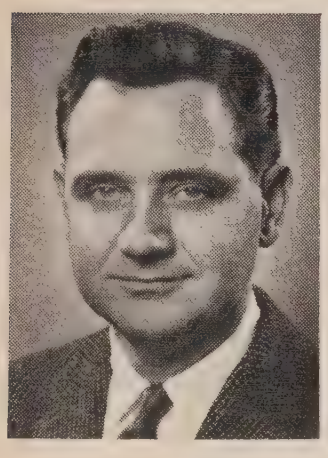

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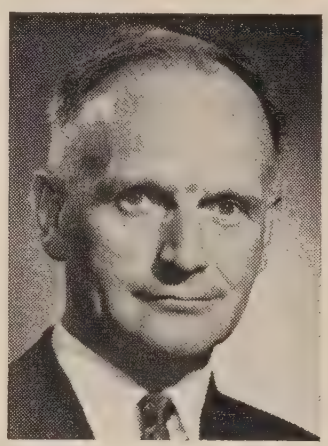

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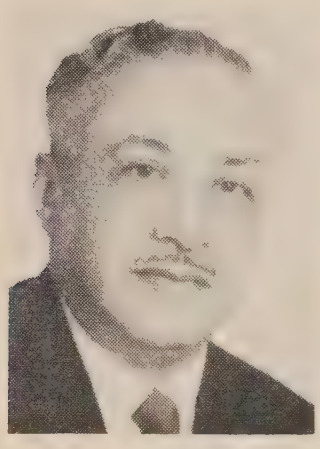

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1. T. G. Ward
2. R. W. Phillips
3. Harold Hillenbrand
4. C. H. Moses
5. T. M. Graber

5

tion of cavity base materials; polysulphide rubber and silicone impression materials. Manipulative factors and clinical application will be stressed.

contemporary and future dentistry

Dentistry: prospect for the future
Harold Hillenbrand, Chicago

Dr. Hillenbrand, secretary of the American Dental Association, has a distinguished career as an administrator, educator and editor. He has taken an active role in the movement to advance the standards of dentistry and to focus emphasis on dental health throughout the world. He was the first dentist to serve as an adviser to the American delegation for the World Health Organization. Dr. Hillenbrand is also an honorary vice-president of the Fédération Dentaire Internationale, world-wide organization of national dental societies. Some of the problems which dent-

des matériaux à empreinte à base de silicone et de polysulfite de caoutchouc. Elle appuie sur les facteurs de manipulation et sur les applications cliniques des matériaux obturateurs.

dentisterie contemporaine et future

Dentisterie: perspective d'avenir
Harold Hillenbrand, Chicago

Le docteur Hillenbrand, secrétaire de l'Association dentaire américaine, a eu une carrière remarquable comme administrateur, éducateur et rédacteur. Il a joué un rôle éminent pour promouvoir les standards de la chirurgie dentaire et pour susciter, dans le monde entier, de l'intérêt pour la santé dentaire. Le docteur Hillenbrand fut le premier dentiste à agir comme consultant de la délégation américaine à l'Organisation mondiale de la santé. Il est de plus vice-président honoraire de la Fédération dentaire internationale, qui groupe les associations dentaires nationales du monde. Le docteur Hillenbrand traitera des problèmes d'ordre

istry faces in a kaleidoscopically changing social order will be discussed in terms of dental education, licensure, economics, political and professional development.

social qui confrontent la profession dentaire par rapport à la formation professionnelle, l'autorisation de l'exercice, le régime économique, et le développement politique et professionel.

complete prosthodontics

Theory and practice of impression making

Complete denture procedure after the impression

C. H. Moses, Toronto

Dr. Moses is chief of dentistry and head of prosthodontics at the New Mount Sinai Hospital, Toronto.

prothèse complète

Les principes de la prise d'empreintes et leur application en clinique

Technique complète de la confection des prothèses après la prise d'empreintes

C. H. Moses, Toronto

Le docteur Moses est directeur du département dentaire et chef du service de prothèse au Nouvel Hópital Mount Sinai, de Toronto.

george wellington grieve memorial lecture

Panoramic radiography

T. M. Graber, Kenilworth, Illinois

Dr. Graber, a member of the American Association of Orthodontists, is associated with Northwestern University Dental School, Chicago.

conférence du mémorial george wellington grieve

Radiographies panoramiques.

T. M. Graber, Kenilworth, Illinois

Le docteur Graber est membre de l'Association américaine des orthodontistes et il participe à l'enseignement de l'orthodontie à la faculté dentaire de l'Université Northwestern, de Chicago.

Queen Elizabeth Planetarium

Mai Pohlak, president, Canadian Dental Hygienists Association

Irene Pollock, president, Canadian Dental Nurses and Assistants Association

dental hygienists • hygiénistes dentaires

The newly formed Canadian Dental Hygienists Association invites all dental hygienists to attend the first annual meeting in Edmonton. Included in the program are a discussion on the growth and trends of dental hygiene in Canada, an essay on oral manifestations of communicable diseases, and attendance at the Grieve Memorial Lecture.

L'Association canadienne des hygiénistes dentaires, nouvellement formée, invite toutes les hygiénistes dentaires à assister à son premier congrès, qui aura lieu à Edmonton. Le programme comprend une discussion sur les progrès et les tendances de l'hygiène dentaire au Canada, une conférence sur les manifestations des maladies contagieuses dans la bouche et la conférence du Mémorial Grieve.

dental assistants • assistantes dentaires

The Canadian Dental Nurses and Assistants Association invites all dental assistants to the annual meeting in Edmonton. Program highlights include an essay by R. W. Phillips, table clinics, the annual business meeting, installation of officers, a buffalo barbecue, and other social events.

L'Association canadienne des infirmières et des assistantes dentaires invite toutes les assistantes à son congrès annuel, qui aura lieu à Edmonton. Le programme comprend une conférence par le docteur R. W. Phillips, des cliniques de table, la réunion d'affaires annuelle, l'élection des officiers, un dîner au bison en plein air et d'autres activités sociales.

social events • programme social

sunday, june 28

A Sunday Evening Musicale will be presented featuring chamber music and operatic highlights.

dimanche, le 28 juin

Concert de musique de chambre et d'extraits d'opéra.

monday, june 29

A "Klondike Days" barbecue featuring buffalo meat will be held on Monday evening.

lundi, le 29 juin

Dîner en plein air, durant la soirée, comme au temps de la "Ruée vers le Klondyke": bison rôti à la broche.

wednesday, july 1

The president's banquet and ball, social highlight of the convention, will be held in the beautiful new ballroom of the Macdonald Hotel. Cocktails at 7.00 p.m. will precede dining and dancing in a gay informal atmosphere.

mercredi, le 1er juillet

Le banquet et le bal du président, évènements sociaux par excellence du congrès, auront lieu dans la nouvelle salle de bal merveilleuse de l'Hôtel Macdonald. Le co-

Ballroom • Macdonald Hotel • Salle de bal

arts and handicraft exhibit

All dentists, the members of their immediate families, and their employees are invited to submit exhibits for display at the Canadian Dental Association Arts and Handicrafts Exhibit in the Jasper Room of the Macdonald Hotel, June 28 to July 1. Colour transparencies and flower displays cannot be accepted, but original paintings, drawings, sculpture, jewellery, ceramic art, woodwork, metalcraft, leathercraft or photographic enlargements are welcomed. Entry forms and complete information may be obtained from J. D. Hawkins, 8123—104th Street, Edmonton, Alberta.

Mrs. R. D. Haryett

events for ladies

Sunny Alberta, renowned for its scenic attractions and western hospitality, beckons the ladies and families of visiting convention delegates to a friendly informal holiday. A committee under the chairmanship of Mrs. R. D. Haryett has prepared a diversified program of activities including the Sunday evening musicale, the president's banquet and ball, a barbecue-style dinner, chuckwagon lunches, children's picnics and visits to Edmonton's Alberta Game Farm and Storyland Valley Zoo.

post-convention attractions

Alberta's many attractions—idyllically beautiful mountain scenery, well-stocked streams to thrill the angler, and delightful resorts—will tempt visitors to linger a while following

quetel, servi à 7.00 hres p.m., précédera le dîner et la danse qui se dérouleront dans un climat sans cérémonie et de franche gaieté.

exposition d'art et d'artisanat

Tous les dentistes, les membres de leur famille et leurs employés sont invités à faire parvenir leurs travaux à l'exposition d'art et d'artisanat de l'Association dentaire canadienne. Cette exposition aura lieu dans la salle Jasper de l'Hôtel Macdonald, du 28 juin au 1er juillet. On ne peut accepter des diapositives, ni des bouquets de fleurs. On accueillera avec plaisir des peintures, des dessins, des sculptures, des bijoux, des céramiques, des sculptures sur bois, des travaux sur métal, des pièces de cuir repoussé ou des agrandissements de photographies. On peut se procurer des formules d'inscription et d'autres renseignements, en s'adressant à J. D. Hawkins, 8123—104th Street, Edmonton, Alberta.

programme des dames

La province d'Alberta, où il fait toujours soleil et qui a des paysages merveilleux, fait signe aux épouses et aux membres de leur famile pour de plaisantes vacances agrémentées par l'hospitalité proverbiale des gens de l'ouest. Un comité sous la présidence de Mme R. D. Haryett, a mis sur pied, à leur intention, une série intéressante d'attractions: concert du dimanche soir, banquet et bal du président, dîner en plein air au bison rôti sur broche, déjeuners dans des chariots de cantine, piques-niques pour les enfants, visites à la ferme d'élevage d'animaux sauvages, à Edmonton, et au jardin zoologique de la Storyland Valley.

suggestions après le congrès

Les attraits d'Alberta — paysages de montagnes de rêve, ruisseaux où fourmillent des truites (tentation pour les pêcheurs), endroits variés de villégiature — sont des raisons

Maligne Lake, Jasper National Park

the convention. Among the many popular tours available is one which takes the visitor to Jasper, Lake Louise and Banff, terminating at Calgary in time for the famous Calgary Stampede. A limited number of reserved Stampede tickets are available to visitors. Reservation requests should be made by completing and mailing the attached Stampede ticket reservation form without delay. Accommodation at Jasper, Lake Louise, and Banff should be reserved before the end of March so as to avoid disappointment. Some accommodation, available in the private homes of Calgary dentists, will be allocated according to the order in which requests are received.

valables pour prolonger son séjour après le congrès. Une des tournées que choisiront la plupart des congressistes comprend Jasper, le Lac Louise et Banff; elle se termine à Calgary à temps pour le fameux Stampede de Calgary. Il y a encore un certain nombre de billets disponibles pour le Stampede. On peut retenir des billets pour ce spectacle en remplissant tout de suite la formule ci-après. Il faudrait, pour éviter des déceptions, retenir avant la fin de mars des chambres à Jasper, au Lac Louise et à Banff. Des dentistes de Calgary offrent des chambres dans leur demeure à ceux qui en feront la demande: cette gentillesse est forcément limitée et les premiers en liste ont plus de chance d'être acceptés.

▸ Mail with payment enclosed to / poster avec un chèque à:

R. H. Blaquiere, 627 Professional Building, Edmonton, Alberta.

July 6-11, 1964 — du 6 au 11 juillet, 1964

Calgary Stampede

Name / nom _____

Address / adresse _____

Please reserve / s.v.p. réserver tel qu'indiqué ci-dessous :

_____ seats, afternoon / sièges, après-midi / @ $2.50

_____ seats, evening / sièges, soirée / @ $3.00

Day and date required / jour et date désirés _____

_____

Payment enclosed / paiement ci-inclus $_____

registration form • formule d'inscription

National Convention
Canadian Dental Association
Alberta Dental Association
June 28 - July 1, 1964

Congrès national
Association dentaire canadienne
Association dentaire d'Alberta
du 28 juin au 1er juillet, 1964

Edmonton

Name / Nom _____

Address / adresse _____

City / ville _____ Province _____

Wife's name / nom de l'épouse _____

Golf: yes / oui ☐ no / non ☐

Complete this form and mail together with the registration fee to the Alberta Dental Association, 9901-108th Street, Edmonton, Alberta. Make cheques payable to "C.D.A. 1964 Convention." Registration fee, $40 (single), $10 (wife), includes three luncheons, barbecue and president's banquet and ball. Early registration is most desirable and will be greatly appreciated.

Remplir cette formule et la poster avec les frais d'inscription à l'Association dentaire d'Alberta, 9901-108th Street, Edmonton, Alberta. Faire les chèques à l'ordre de "C.D.A. 1964 Convention." Honoraires d'inscription: $40 (seul), $10 (épouse), y compris les trois déjeuners, le dîner en plein air, le banquet et le bal du président. Les organisateurs aimeraient que les congressistes s'inscrivent à l'avance.

accommodation • logement

The Macdonald Hotel will be the convention centre. Other nearby hotels and motels (Mayfair Hotel, Caravan Motor Hotel, King Edward Hotel, Greenbrier Motor Hotel) also offer convenient modern accommodation. Rates for single or double occupancy rooms vary from approximately $7 to $18 per day. Equivalent substitution is made where the requested accommodation is not available.

L'Hôtel Macdonald sera le chef-lieu du congrès. D'autres hôtels et des motels, situés tout près (Mayfair Hotel, Caravan Motor Hotel, King Edward Hotel, Greenbrier Motor Hotel) peuvent loger des congressistes d'une façon convenable et moderne. Les prix des chambres simples ou doubles varient de $7 à $18, par jour. On s'efforcera, si les chambres requises ne sont plus disponibles, de les remplacer par d'autres du même genre.

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Cytodiagnosis of early and unsuspected mouth cancer

H. C. Sandler, D.M.D., M.P.H., Brooklyn, New York*

Five percent of all cancers originate in the mouth and in adjacent anatomical sites. Modern medical care notwithstanding, two out of three of the unfortunate victims of mouth cancer die of the disease. This high mortality, as well as the associated morbidity, can be greatly reduced by early detection of the primary lesion and prompt treatment.

Cancers of the mouth do not appear suddenly. Many months, even years, may elapse between the first signs of a pre-malignant lesion and recognition of its malignant character. Initial cancer lesions are painless for a long time. Their early appearance is innocuous for they frequently resemble or may arise from benign abnormalities that are commonly encountered in the mouth. By the time that pain or limitation of function alerts the patient to seek professional advice, and by the time that the clinical appearance arouses enough suspicion to justify biopsy, the primary cancer lesion has usually advanced to such an extent that the regional lymph nodes are involved and the chances of cure are poor.

*Chief, Dental Service, Veterans Administration Hospital, Brooklyn, New York, and associate professor of oral medicine, New York University College of Dentistry.

FIGURE 1 Tumour of the lateral border of the tongue suspected of cancer. The tumour was asymptomatic, indurated and covered with keratin, but there was no ulceration. Cancer should be suspected and a biopsy should be obtained for diagnosis. Cytodiagnosis is optional.

FIGURE 2 Lymphoid hyperplasia in the area of the lingual tonsil. Early cancers sometimes simulate the appearance of this benign condition.

Dentists encounter thousands of abnormalities of the oral mucosa in the course of routine oral examination. Many are unbeknown to the patient for they are usually asymptomatic. However, when patients notice mouth lesions dentists are frequently the first to be consulted. Although most of these lesions are benign or transient, some innocent-appearing lesions represent early manifestations of cancer and their exact clinical diagnosis is almost impossible without laboratory aids. More often than not these abnormalities receive only superficial attention or they may be kept under surveillance for a long time until their sinister character is unmistakable.

If cancer is suspected (Figure 1) a sample of tissue should be obtained for biopsy so that the diagnosis may be verified. The technique of biopsy requires some degree of judgement, skill and training, but it is a relatively uncomplicated surgical procedure that is far less traumatic than the extraction of a tooth. Nevertheless dentists and physicians are reluctant to undertake the procedure. Clinicians are particularly hesitant about suggesting biopsy when the oral lesion resembles a commonplace benign lesion and gives the patient no trouble (Figure 2). Sometimes patients will refuse biopsy and few will tolerate a second or third biopsy when the previous one is negative. These factors limit the detection of the beginning and curable mouth cancers.

Cytodiagnosis is a sensitive and reliable diagnostic tool that can disclose early mouth cancers. The clinical technique is very simple, requires no special armamentarium or skill, is painless and harmless. However, the laboratory procedures require considerable skill and training.

Sporadic reports of cytodiagnosis of cancer appeared in the medical literature from time to time, but their impact upon medical practice was negligible until Papanicolaou made his outstanding contributions.[1,2] His investigations, culminating in the classic work of Papanicolaou and Traut,[3] conclusively demonstrated that cytodiagnosis could disclose unsuspected uterine cancer and that the findings were reliable. Cytodiagnosis has since been widely applied, not only in gynaecological practice, but also for detection of cancer of the lungs, stomach, prostate gland, breast, rectum, nasopharynx, and other anatomical regions that elude ordinary diagnostic methods.

There was no apparent urgency for exploration of cytodiagnosis of cancer of the mouth since the mouth is so readily accessible to direct examination and suspicious

lesions could be biopsied with little difficulty. However, preliminary investigation provided convincing evidence that cytodiagnosis could be a valuable adjunct to traditional diagnostic procedures, and in 1956 a pilot study was initiated at the Veterans Administration Hospital, Brooklyn, New York, to test its effectiveness in detecting early mouth cancers. It was apparent from these studies that oral exfoliative cytology could yield a reliable and prompt cancer diagnosis and could sometimes disclose cancer when the clinical lesion was not suspected.[4] Similar findings were reported by Silverman,[5–7] Umiker[8–10] and Tiecke.[11]

All of these studies were based upon relatively small numbers of patients and a limited variety of mouth lesions. It was therefore essential to assess the accuracy and determine the practicality of cytodiagnosis of oral lesions in routine clinical practice. It was important to determine if cytology could disclose mouth cancers that would not otherwise be revealed. Reliable answers to these questions required testing upon a large scale under controlled conditions, encompassing the widest possible variety of oral lesions within a framework of normal dental practice.

In 1956, a co-operative study was initiated by the Dental Service of the United States Veterans Administration in 10 hospitals and three outpatient clinics.[12,13] Comprehensive oral examinations of 118,194 patients over a three-year period disclosed 2,758 who exhibited some kind of abnormality of the oral mucosa. Every lesion was scraped for cytological analysis whether or not cancer was suspected. Some patients presented with multiple lesions and others had repeated specimens taken at intervals, thereby increasing the number of pairs of cytological specimens to a total of 3,197. Biopsies were obtained whenever possible and indicated. Most of the mouth lesions encountered did not warrant biopsy from their clinical appearance, symptoms or cytodiagnosis. Nevertheless, from 592 of the lesions both a cytological specimen and a sample of tissue for biopsy were obtained. Of these 592 correlated cytological and histological specimens of the same lesion 315 were confirmed as mouth cancer and 277 were from benign lesions. There were 15 errors of cytological diagnosis of cancer. Eight cytological specimens did not disclose cancer that was revealed by subsequent biopsies (false negatives). Seven cytological specimens contained aberrant cells suggestive of cancer, but histological confirmation was not obtained (false positives). The remaining 577 cytological and histological diagnoses were accurately correlated.

It should be noted that in this same series there were 22 cases of "error" of histological diagnosis. The cytological diagnosis was positive, but the first biopsy that followed was negative. Since the cytological findings had revealed aberrant cells suggestive of cancer, biopsies were repeated and these confirmed the diagnosis. In 17 cases the second biopsy revealed carcinoma; in three cases, three biopsies were required; in one case four biopsies were required and in one case five biopsies were required before the cancer diagnosis was confirmed. These false negative biopsies were errors of histological diagnosis.

Although most of the lesions that eventually proved to be cancer were also clinically suspected at the time of examination, 87 malignant lesions appeared clinically benign and were not suspected as malignant. The clinical appearance of these deceivingly innocent cancers varied widely and their clinical diagnosis included leucokeratosis, inflammation, ulcer, papilloma, mucous cyst, granuloma, fibroma, traumatic lesion and other benign conditions.

Twenty-five of these unsuspected mouth cancers were excised as benign lesions, but their true nature was unexpectedly identified by both cytological and routine histological examination. These 25 unsuspected cancers would probably have been discovered regardless of cytodiagnosis, for excised lesions are routinely subjected to histological analysis.

Of particular significance were the remaining 62 clinically unsuspected mouth cancers that were not recommended for biopsy. These cancers were discovered by cytodiagnosis. They would certainly not have been discovered at that time if scraping specimens of all oral lesions had not been routinely submitted for cytodiagnosis.

Selection and preparation of oral lesions for cytodiagnosis

Oral exfoliative cytology is primarily directed toward diagnosis of the incipient, the cryptic and unsuspected cancers of the mouth. It is not a substitute for biopsy. Any mouth lesion that does not disappear in a short time should be biopsied or, if small, completely excised. However, even if a biopsy is scheduled, a cytological sample should be obtained beforehand since cytodiagnosis and biopsy can supplement and reinforce each other, thus increasing the probability of accurate diagnosis.

Every abnormality of the oral mucosa should be investigated whether or not cancer is suspected. In addition, cytodiagnosis should be utilized when repeated biopsies are impractical or undesirable.

The object when making a smear is to remove the superficial epithelial cells for microscopic study. Superficial epithelial cells exfoliate constantly. As these surface cells are lost or abraded, they are replenished by the underlying maturing cells. In order to obtain a representative sample of cells from the lesion in question, the surface must be scraped with sufficient force to dislodge the cells. Although it is desirable to avoid bleeding when possible, a little blood will not interfere with staining of the epithelial cells.

Most lesions require no preparation and they should neither be wiped nor dried. If the lesion is covered with debris or slough, the surface is cleansed by wiping with gauze moistened in normal saline. Ordinarily there is no pain or discomfort

FIGURE 3 Scraping: The objective is to obtain a representative sample of surface cells. The edge of a wet, wooden tongue depressor is firmly scraped over the entire surface of the area.

FIGURE 4 Spreading: The material on the edge of tongue depressor is quickly spread out on the microscopic slide. Make sure it is on the same side as the ground glass and identifying data.

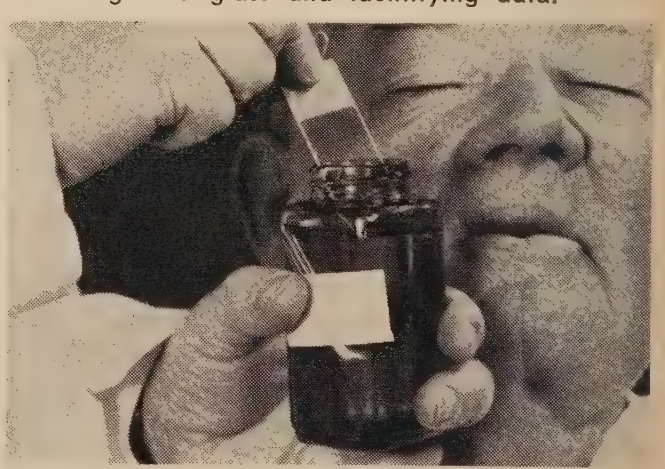

FIGURE 5 Fixing: Each slide is immediately plunged into 95 per cent alcohol. The slides remain in the alcohol for 30 minutes or longer and are then stained with Papanicolaou stain.

attendant upon scraping for cytodiagnosis, but if the lesion is tender, a topical anaesthetic is usually adequate.

Keratinized lesions present a minor problem. When there is fissuring or erosion at the edges, these areas are suitable for sampling. Otherwise scraping of thickly keratinized lesions will yield only keratin but no cells. It is necessary to remove the white keratinized surface by scraping with a sharp curette or grinding with a small diamond stone until the underlying pink tissue is visible. The exposed pink surface can then be scraped.

Specimens of lip lesions are often unsatisfactory because the material removed from the surface consists primarily of keratin. Encrustation must be removed and the specimen should represent the deeper layers.

Exudates are treated like blood smears; one or two drops are placed at one end of a slide and spread with the edge of another slide.

Technique of taking smear

1. Materials required: Microscopic slides, wooden tongue depressor, fixative, clinical report form and lead pencil.

2. Identifying information (name of patient, date and location of lesion) is printed in lead pencil on the ground glass edge of at least two microscopic slides for each lesion.

3. The tongue depressor is dipped in tap water and the entire surface of the lesion is then vigorously scraped several times in one direction with the edge of the wet tongue depressor (Figure 3).

4. The scrapings picked up on the edge of the tongue depressor are spread out evenly and rapidly on a dry microscopic slide, making sure that the smear is on the side with the frosted edge and writing (Figure 4).

5. Each specimen is immediately fixed after spreading the collected scrapings by one of the following methods:

(a) plunging the slides into 95 per cent ethyl alcohol and fixing for at least 15 minutes (Figure 5). The slides are removed when convenient and dried in air (do not heat); or

(b) placing the slide smear on a flat surface or tray and flooding the smear with a few drops of fixative, comprised of 19 parts 95 per cent ethyl alcohol to one part polyethylene glycol (carbowax) — The slides are not disturbed until the fixative has evaporated and the surface is dry (about 15 minutes or more).

6. A brief clinical history, a description of the lesion, and other pertinent information are recorded while the smears dry.

7. Each slide is individually wrapped in a sheet of plastic held in place with a rubber band and carefully packed into a mailing tube to avoid breakage. Alternatively, unwrapped slides may be placed in a slotted plastic tube manufactured for the purpose. The clinical report is enclosed and the tubes are mailed or delivered to the cytology laboratory.

Cytopathology of cancer

The same cellular abnormalities are present in histological and cytological specimens of the same lesion, but when observed in a different environment, these same cells often appear to be quite different. Although cytopathology is limited in its diagnostic scope, the separation of individual cells makes examination easier. The artefacts of fixing and processing histological specimens are minimized and intracellular detail is much more clearly delineated. In rare instances a glimpse of tissue structure may be available on a smear, but for the most part, cytological examination focuses upon the morphological and staining characteristics of the individual cell.

Normal cells from oral epithelium are remarkably uniform in their morphological and biochemical characteristics (Figure 6). However, unusual physiological or pathological stimuli alter their activity and appearance, sometimes to an extreme degree producing cellular atypia that may

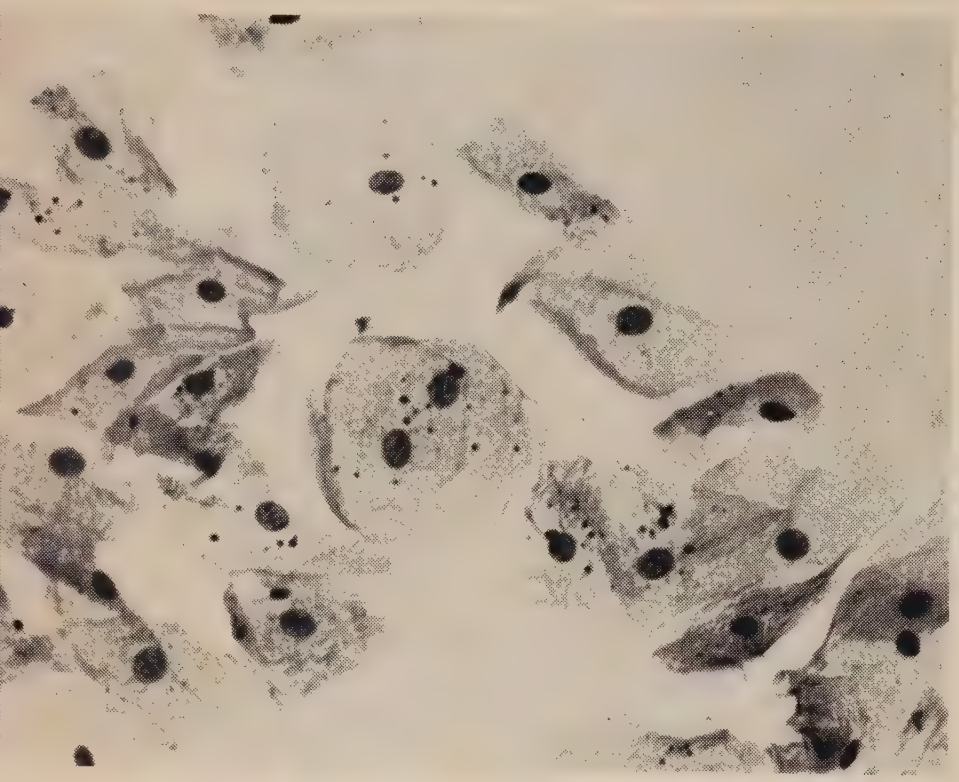

FIGURE 6 Normal epithelial cells from the surface mucosa of the soft palate (X1000, reduced by one-third, Pap stain). The cells are flat, irregularly polyhedral, with many folded over on themselves. The cytoplasm stains a pale blue-green to light orange, is translucent, somewhat granular and contains fairly large opaque inclusions. The nuclei are relatively small; several are dense and pyknotic, but in most cells the nuclear chromatin is well distributed in an irregular pattern.

simulate the aberrant characteristics of cancer cells.

The general characteristics of cancer cells obtained from oral epithelium are very similar to those found in cancers originating in other epithelial tissues. However, keratinization does not have the sinister implications that would apply to other epithelia.

There is no single test or critical end point that can distinguish a cancer cell from one with no malignant potential. The initial mutant cells that reproduce and develop into cancer retain many of the basic attributes of their ancestors. Some of these inherited characteristics may be grossly exaggerated and others may regress to the point of disappearance. Their effect, however, is to modify the morphology and staining characteristics of the cell and to produce a very wide range of cellular aberrations.

Specific aberrant characteristics occur with such frequency in cells from cancer lesions and are so rarely seen in cells from benign lesions that these abnormalities form a good basis for diagnosis. Cancer cells do not have uniform characteristics and their many varieties may occur in almost any combination (Figures 7-9). Although their precise identification is sometimes difficult, all of the cellular abnormalities observed in smear samples can also be seen in tissue specimens from the same lesion.

Conclusions

Oral exfoliative cytology is a reliable and a sensitive diagnostic tool that can disclose mouth cancers at an early stage of their development when the primary lesion appears benign, when cancer is clinically unsuspected and when biopsy does not seem to be warranted. It is particularly valuable for the follow-up of persistent oral lesions that cannot be repeatedly biopsied, for recurring leucoplakias, and the follow-up of patients previously treated for mouth cancers. When cancer is suspected, a biopsy should be obtained for cytodiagnosis is no substitute for biopsy. However, cytological examination supplements and supports biopsy, for a cytological specimen can sometimes reveal evidence of cancer even

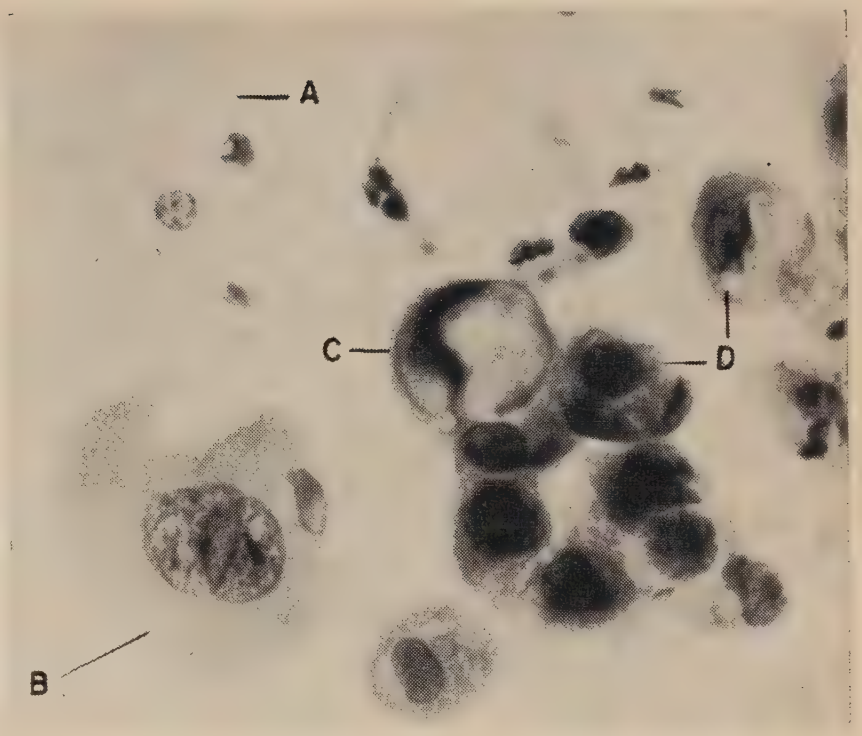

FIGURE 7 Cancer cells from the surface of a lesion of the soft palate (X1000, reduced by one-third, Pap stain). A. A precornified normal epithelial cell; stained light pink. The nucleus is small, and the nuclear chromatin is well distributed. B. A binucleate cancer cell. The cytoplasm stained blue-green; the nuclei are large; the nuclear chromatin is coarse with enlarged hyperchromatic karyosomes or nucleoli. C. An enlarged and vacuolated cancer cell with hyperchromatic nucleus of irregular shape. D. A cluster of cancer cells forming a syncitium. The cytoplasm is basophilic with poorly defined outlines. The nuclei contain irregularly distributed clumps and strands of chromatin. Anisocytosis, anisonucleosis, increased nucleocytoplasmic ratio, and multinucleation are also notable.

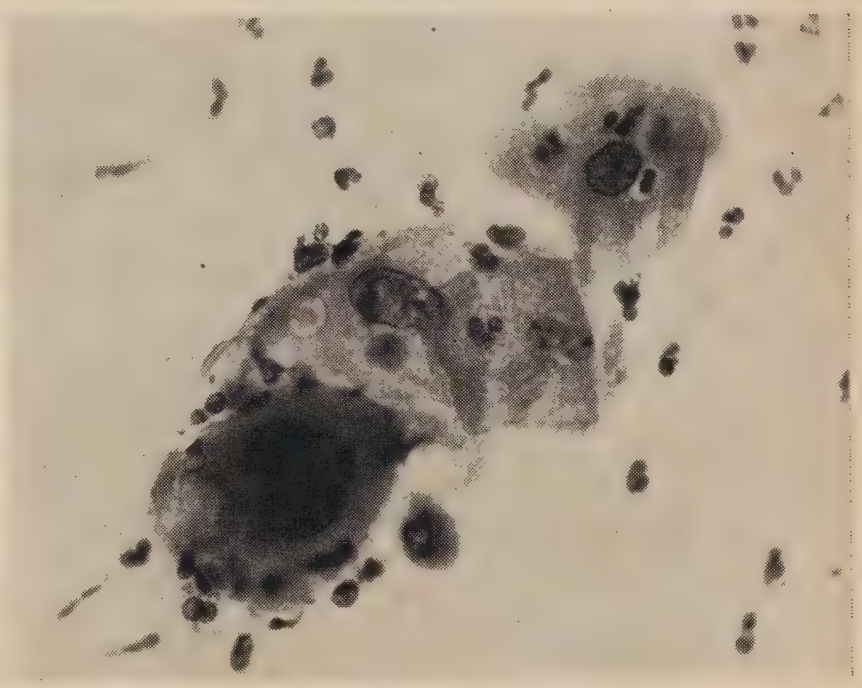

FIGURE 8 Cancer cells (X1000, reduced by one-quarter, Pap stain). A multinucleated cornified cell, a cell with an ovoid nucleus of irregular outline, and a third cell containing a nucleus that has chromatin condensed at the peripheral border.

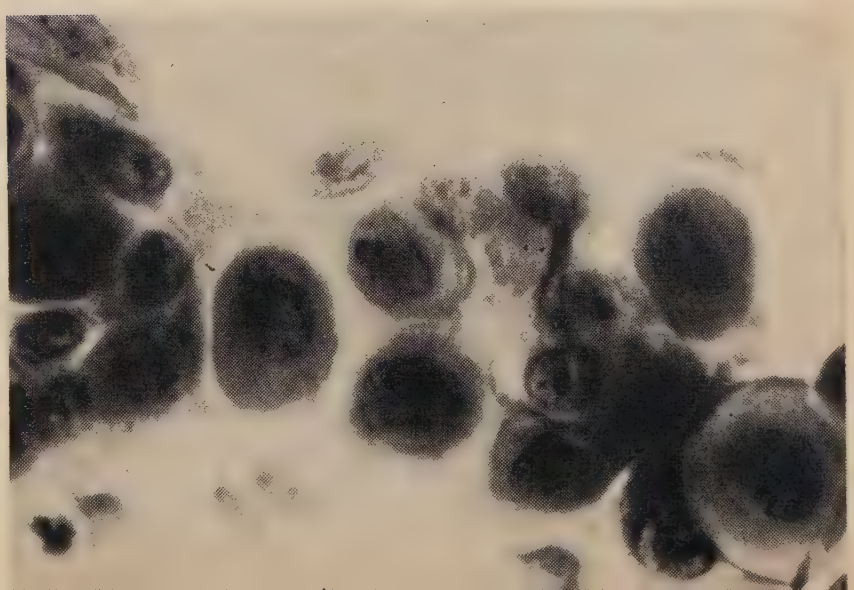

FIGURE 9 Cancer cells (X1000, reduced by one-quarter, Pap stain). A cluster of roughly spherical, deeply orangeophilic cells of various sizes and shapes, increased nucleocytoplasmic ratios, and containing nuclei with irregular condensation of chromatin and prominent, irregular and enlarged nucleoli.

though the first biopsy is negative. Cytodiagnosis frequently reveals carcinomas in situ as well as premalignant lesions.

The reliability of cytodiagnosis is directly proportional to the training and experience of the cytopathologist, but under controlled laboratory supervision, the probability of error is small.

The clinical technique for obtaining and fixing a cytological specimen is so simple, rapid, painless, atraumatic, harmless and inexpensive that any physician or dentist, specialist or general practitioner can perform this task.

Widespread application of oral exfoliative cytology in dental practice may serve to encourage investigation of mouth lesions that are now being disregarded. It can reinforce present diagnostic procedures, particularly when the first biopsy is negative. Cytodiagnosis simplifies the problems of follow-up of patients treated for cancer, leucoplakias and precancerous lesions; it opens additional channels for medical consultation and will undoubtedly lead to discovery of a substantial number of early and unsuspected mouth cancers.

Résumé

La cytologie exfoliatrice est principalement dirigée pour le diagnostic de cancers au début, occultes voire non suspectés. Ce n'est pas un substitut de la biopsie. Toute lésion qui ne disparaît pas en peu de temps doit être biopsiée, ou, dans le cas où elle est de petite taille, excisée complètement. Cependant, même si une biopsie est prévue, un prélèvement cytologique peut être effectué préalablement, car cytologie et biopsie se complètent et se renforcent l'une l'autre, augmentant ainsi la probabilité d'un diagnostic précis.

Toute anomalie de la muqueuse orale doit être examinée: que la lésion puisse paraître congénitale, traumatique ou de diagnostic clinique évident ou qu'un cancer soit ou non suspecté. En outre, le diagnostic cytologique doit être utilisé, s'il n'est pas pratique ou désirable de soumettre le sujet à des biopsies répétées.

L'objectif est de prélever des cellules épithéliales superficielles pour étude microscopique. Les cellules épithéliales superficielles s'exfolient constamment. Lorsque ces cellules de surface sont détachées elles sont remplacées par la couche sous-jacente cellules en maturation. En vue d'obtenir un spécimen représentatif de la lésion, la surface doit être raclée avec suffisamment de force pour arracher ces cellules. Il est cependant désirable d'éviter un saignement abondant dans la mesure du possible; mais un peu de sang n'empêchera tout de même pas la coloration des lames.

La plupart des lésions ne réclament pas de préparation et elles ne doivent être ni essuyées ni séchées. Par contre, si elles sont recouvertes de débris ou de tissu mort, il faut nettoyer la surface en la frottant avec une compresse de gaze imbibée de solution saline isotonique. Le prélèvement pour la cytologie n'occasionne ordinairement aucune douleur ou inconfort, mais si la lésion est douloureuse, un anesthésique de contact est généralement avantageux.

Les lésions kératinisées sont parfois un problème. S'il existe une fissure ou une érosion à leurs bords, ces régions sont nettoyées pour le prélèvement. L'échantillonnage sur les parties fortement kératinisées ne rapportera que de la kératine et pas de cellules. Dans de tels cas, il faut tout d'abord enlever, au moyen d'une curette tranchante, la surface blanche kératinisée ou la gratter avec un petit diamant, jusqu'à ce que le tissu rose soit visible. Il faut ensuite prélever sur la nouvelle surface exposée.

Les spécimens prélevés sur la lèvre sont souvent inadéquats, car le matériel arraché à sa surface consiste principalement en kératine. La couche superficielle doit être enlevée pour que l'échantillon représente les couches les plus profondes.

Les exsudats sont traités comme pour le sang: une ou deux gouttes sont placées sur l'extrémité d'une lame, puis sont étalées à l'aide d'une autre lame.

Technique d'échantillon sur lame:

1. Matériel nécessaire: lames, abaisse-langue de bois, fixateur, anamnèse, crayon pour inscription sur verre.

2. Inscrire les données (nom du patient, date, localisation de la lésion) sur au moins deux lames à leurs parties inférieures.

3. Mettre l'abaisse-langue sous l'eau du robinet, frotter la surface de la lésion en totalité avec l'extrémité mouillée de l'abaisse-langue de bois, plusieurs fois dans une seule direction (Figure 3).

4. Le matériel prélevé par l'extrémité de l'abaisse-langue est étalé immédiatement et rapidement sur une lame sèche. Il faut s'assurer que le spécimen est sur la face où les inscriptions ont été faites (Figure 4).

5. Fixer chaque spécimen immédiatement après étalement selon l'une des méthodes suivantes:

(a) plonger la lame dans de l'alcool éthylique à 95 degrés et fixer au moins quinze minutes. Enlever les lames, les sécher à l'air (ne pas chauffer) ou,

(b) placer les lames préparées sur une surface plate ou sur un plateau et mouiller la préparation avec quelques gouttes de fixateur, composé de 19 parties d'alcool à 95 degrés et d'une partie de "carbowax." Ne pas toucher les lames jusqu'à ce que le fixateur soit évaporé (15 minutes ou plus);

6. Pendant que la préparation est en train de sécher, compléter brièvement l'anamnèse, la description de la lésion et tout autre information utile;

7. Envelopper chaque lame individuellement dans un morceau de plastique et les attacher avec un élastique. Alternativement, placer les lames non enveloppées dans un flacon en plastique muni de fentes. Faire un paquet adéquat pour envoi postal, afin d'éviter toute casse, joindre l'anamnèse du cas et expédier au laboratoire de cytologie.

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Cytological diagnosis of oral lesions: the role of the dental practitioner

F. D. Bertalanffy, Ph.D., Winnipeg, Manitoba*

Cytological cancer diagnosis of the oral cavity, as compared to that of other sites, has been performed only to a minor extent. Merely in sporadic institutions and clinics is this procedure applied at an appreciable scale. This is despite the fact that the oral cavity is the most accessible site for collection of exfoliated material. One reason for the limited application of oral cytodiagnosis appears to be the meagre supply of this material. Cytodiagnosis is the best known means for the detection of malignant lesions while these are still small, localized, and in early stages. When discovered, such lesions, for instance, can often be removed by minor surgery. The great impact of cytological diagnosis is evident particularly in regard to cancer of the female genital tract where it contributed to an immense reduction in the fatality rate of patients afflicted with the disease. Although early detection of oral lesions by cytodiagnosis would be as readily feasible, comparatively little attention has been usually paid in the past to this possibility. For instance, according to the reports of the National Cancer Institute of Canada, close to 1,500 persons have succumbed during the last three years in Canada alone to cancer of the oral cavity (including pharynx). It is not a mere assumption that a large proportion of victims would have survived had their lesions been detected early. Moreover, not all cancerous lesions are necessarily fatal. Patients could be spared lengthy treatment, if the tumours were diagnosed early while still confined to a small area of the oral mucosa.

More attention was recently being directed to the possibility of instituting oral cytodiagnosis in dental clinics. Programs of this type are under way in some such clinics in the United States. Moreover, since most dental treatment is performed in private dental practice, co-operation of dental practitioners in submitting exfoliated material from their patients, at least from those with discernible oral lesions is an important consideration. This article attempts to stimulate dentists' interest in oral cytodiagnosis. It supplies directions for collecting oral exfoliated material. Moreover, to indicate the basis of this diagnosis, the mechanism culminating in cell exfoliation from the oral epithelium is briefly described.

Basis of cell exfoliation

Cell exfoliation or desquamation is one phase of a physiological process, known as cell renewal, peculiar to many tissues of the body where it continues throughout life of the individual.[1] The oral cavity and its components (aside from the teeth) are covered by a relatively thick multicellular layer called stratified squamous epithelium. This is composed of several layers of squamous epithelial cells in different stages of differentiation. The lowermost layer, in contact with the subepithelial connective tissue, is formed by a single row of small, incompletely differentiated basal cells. Immediately above these are the somewhat larger parabasal cells. These are followed in turn by the

*Associate professor of anatomy, Faculties of Medicine and Dentistry, University of Manitoba, Winnipeg.

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intermediate cells that are still larger and more highly differentiated. The surface of the epithelium is composed of the large superficial squamous cells that have reached an advanced stage of differentiation. Depending upon the thickness of the epithelium (which varies in different locations), the number of intermediate and superficial cell layers may range from two to eight, ten or more.

The basal cells of the oral epithelium continuously divide by mitosis, giving rise to further basal cells. These newly formed basal cells have to be accommodated in the tightly packed basal layer. They thus exert considerable pressure upon the neighbouring basal cells, forcing some of them to move into the parabasal layer.[2] Having attained this layer, the cells commence to differentiate, involving among other events chemical transformation of cytoplasmic constituents and increase in size of the cells. This further enhances the cell pressure, which presumably contributes to the migration of the cells through the intermediate into the superficial layers. This migration is associated with further cell differentiation, and the final product, the larger superficial squamous cell, resembles but little the small basal cell from which it has evolved. The superficial squamous cells, which usually are dead or dying, do not remain for long within the epithelial lining, but soon desquamate, and are replaced by others driven toward the epithelial surface by new cells continuously supplied by division of basal cells.

As is evident from this process, the oral epithelium is continuously being renewed by cell division and exfoliation. The time required for all cells of an epithelium to become renewed by this mechanism is known as the renewal time. Animal experimentation revealed that the renewal time of the oral epithelium is quite rapid in most regions. For instance, it was ascertained that the epithelium of the buccal mucosa in the rat becomes completely renewed about every four days, the epithelium of the superior and inferior surfaces of the tongue about every five and eight days respectively, and the thin epidermis of the lip about every 15 days.[3] Trott and Gorenstein[4] have shown that renewal of the stratified squamous epithelium covering the hard palate in the rat occurs about every 14 days, of the crevicular gingiva about every 16 days, of the crestal gingiva about every 22 days, of the epithelial cuff about every 10.5 days, while the attached gingiva becomes renewed only about every 44 days.

Cell renewal of many epithelial tissues constitutes a protective mechanism. The cells divide at a constant rate in anticipation of epithelial damage that would otherwise occur. If the epithelium of the oral cavity was laid down at birth as a stable structure, and the constituent cells were to serve for the lifetime of the individual, the mechanical action of coarse food particles, for instance, would abrade the cells within a brief period of time to such an extent as to expose the subepithelial tissue. In order to forestall such destruction, the cells are renewed by cell division at a constant rate. This enables the epithelial lining by the ingenious mechanism of cell renewal to cope with the multitude of stress conditions.[5]

Cell renewal supplies the vast numbers of normal exfoliated cells present in the oral cavity. Cells likewise desquamate from abnormal and malignant lesions provided they are exposed to the surface. Several factors contribute to exfoliation of neoplastic cells. One of them may be cell pressure because, when rapidly proliferating, newly formed cells may crowd out older tumour cells from the periphery of the lesion. This may be true particularly if expansion of the tumour is hampered by some obstruction, such as hard tissues. Some tumours rapidly increase in size thereby failing to become sufficiently vascularized. Absence of an adequate supply of nutrient media ensues in cell degeneration, and this in turn in necrosis of (frequently the central) tumour regions, and in shedding of cells. Moreover, some types of tumour cells lack sufficient cohesive property and thus readily dissociate. Finally, mechanical

abrasion contributes to cell exfoliation as well.

Both normal and abnormal exfoliated cell elements may thus be present in the oral cavity, and representative samples are collected for cytodiagnosis. It is the task of the cytodiagnostician to determine whether such samples contain only normal cells, cells that are pronounced atypical, hence may be suspicious, or cells of outright malignant character. Examples of neoplasms that may be detected by oral cytodiagnosis are keratinized and nonkeratinized squamous cell carcinomata, basal cell carcinomata, metastatic tumours, and spindle cell sarcomata of supporting connective tissues. It was shown in one study that carcinomata occurred at a proportion of 3:2 in the maxilla and mandible; sarcomata were more frequently encountered in mandibular tissues (1:2).[6] In the same investigation the observed proportion between oral carcinoma and sarcoma was 2.5:1.[6]

Collection of exfoliated specimens

The mode of collecting the exfoliative specimens depends upon the aim set initially. Two possibilities present themselves regarding oral cytodiagnosis. The first comprises the unselective routine collection of oral exfoliative material from every patient examined in the dental practice. The second possibility constitutes collection of exfoliative material only from those patients in whom oral lesions are detected during dental inspection. While the routine collection of specimens from a major proportion of the population is the ultimate aim in many branches of exfoliative cytology, the somewhat less ambitious second possibility may be preferable, at least to begin with, for the dental practitioner. Apart from the complication of collecting routine oral exfoliative material, dental practitioners may meet with difficulty in some locations in having large numbers of cytosmears evaluated.

Three procedures of collection are available. For routine collection of exfoliative material, cell scrapings may be performed of one selected and consistent area. Selected sites may be the gingiva (both maxillary and mandibular), the buccal mucosa, floor of the mouth, palate, or other regions. The advantage of this procedure is that material from a large number of patients may be readily obtained. There is the obvious disadvantage that lesions present in unscraped regions may thereby be missed. Were the scrapings to include all sites mentioned, this would increase the number of cytosmears per patient beyond reasonable limits. Moreover, it is not feasible to scrape the entire surface of the oral cavity. Another technique is the collection of saliva containing exfoliated cells. The advantage of this procedure is that desquamated cells may be obtained originating from lesions almost anywhere within the oral cavity. Disadvantageous, however, is the fact that cells in saliva occur in a very diluted state, and the latter requires centrifugation to concentrate the cells prior to preparing the cytosmears. This additional procedure may prove cumbersome or impractical in some practitioners' offices. Further, from the cytodiagnostic standpoint, salivary specimens are less suitable. The great proportion of cells in saliva have desquamated some time ago, are degenerating, therefore often difficult to evaluate. Viable cells, desirable for diagnosis, are sometimes few and far between.

The third method, recommended to the dental practitioner in particular, is the collection of exfoliative material only from those patients exhibiting lesions of the lip, tongue, gingiva, cheek, palate, and floor of the mouth (the pharynx may be included). The specimens are obtained directly from the lesions, which may range from mere reddened areas, regions of hyperkeratosis, ulcers, leucoplakia, to seemingly benign or malignant tumours.

A perfect procedure for routine collection of oral exfoliative material has not yet been developed. The routine collection of this material has therefore to be carefully standardized so as to succeed with consistency.

The collection of exfoliative material must be performed during the initial examination of the oral cavity, prior to any dental treatment and, most important, before the mouth is rinsed. Prior to collecting the specimen, two clean microscope slides are prepared for each patient. The patient's name or number is written with pencil (not ink or ball point) on the frosted edge of the slide, or, if ordinary microscope slides are used, engraved with a diamond pencil. The types of instruments available for collecting oral exfoliative material are the dental cement spatula, the double-ended metal spatula, the cotton swab applicator and the wooden tongue blade.[7,8] The cotton applicator often results in cytosmears that are rather cell poor, but may be advantageous in hypersalivatory patients. Wooden tongue blades are satisfactory provided they are first moistened in water. The lesion is lightly scraped exerting gentle pressure. The pressure is applied not so much for obtaining more material, but rather cells from deeper layers that are not degenerated and more desirable for diagnosis. The material is subsequently transferred from the instrument to the centre of one microscope slide. The second slide is placed face down on the first, and both slides are gently pulled apart. In this manner, both slides usually contain an almost equal amount of material, which should cover from one-half to two-thirds of the microscope slide area. The exfoliative material is not actually smeared on the slides (as the name of such preparations imply), but spread in the form of a thin film. The latter should ideally be one cell layer thick, and contain neither too little nor too much material. These cytosmears are immediately fixed in an equal mixture of alcohol and ether or alternative suitable fixative, and submitted to the cytology laboratory for evaluation. They must be accompanied by a report stating the name, age and sex of the patient, type of material (e.g. scrape of tongue), and whether the material was derived from an obvious lesion. In the latter case the gross appearance of the lesion should be described briefly (site, size, colour, protruding, smooth, ulcerated, infected or bleeding). If such information can be ascertained from the patient, it should be noted for how long the lesion persisted, whether it has changed recently, and whether it is being treated radiotherapeutically (radiotherapy can alter the morphology of normal epithelial cells).

If the cytology report indicates that a malignant lesion may be present, the patient should be immediately referred for biopsy examination of the lesion, which in most cases will reconfirm the cytologist's report. The patient may be referred directly by the dental practitioner, or indirectly by informing the patient's physician of the presence of the suspicious lesion. The physician will arrange the additional diagnostic tests.

Arrangements must be made with a cytology or pathology laboratory regarding evaluation of the oral specimens to be submitted. Some difficulties may arise in this regard, particularly in smaller communities. It may then be necessary to mail the cytosmears in fixative to a larger medical centre. For this purpose plastic containers are available that, depending on their size, may accommodate from two to 20 smears. Inexpensive methyl or isopropyl alcohol can be used instead of ethyl alcohol as fixative with some cytodiagnostic techniques. With some techniques smears may be dried after adequate fixation and mailed in the dry states. Further information regarding the choice of fixatives can be ascertained from the laboratory to which the specimens are to be submitted.

The dental practitioner can contribute greatly to early detection of malignant lesions. He can do this with little effort. Once arrangements have been made with a cytology or pathology laboratory regarding evaluation of the cytosmears, there is only a relatively small proportion of patients with noticeable lesions from whom specimens are to be collected. The actual diagnosis of the exfoliative smear is a very complex procedure requiring a great deal of experience. Even

though only few cell types are present in the normal oral epithelium, they may be transformed under abnormal circumstances into a great variety of forms. Only a few of these may present outright malignant features. Not always are the latter features striking, and it is thus of utmost importance to provide the cytologist with carefully prepared, representative cytosmears.

Summary

Dental practitioners during everyday practice can contribute greatly to early detection of malignant lesions in the oral cavity and to decreasing the mortality rate associated with this disease. This can be achieved by collecting cell scrapings or other types of exfoliated material particularly from those patients in whom oral lesions are detected during examination of the oral cavity. This material can be obtained without discomfort to the patient. The cytosmears, prepared by the dentist himself or his assistant, are submitted for evaluation to a cytology or pathology laboratory. To stimulate interest in this procedure, suggestions for the collection of oral exfoliative material are provided. The mechanism culminating in cell exfoliation is also described briefly.

Résumé

Les dentistes peuvent contribuer au dépistage précoce des cancers de la cavité buccale et à la diminution du taux de mortalité amenée par ces lésions. Il ne s'agit que de prélever des desquamations ou des exfoliations de cellules des lésions décelées au cours de l'examen de la cavité buccale. On peut gratter ces lésions sans causer d'ennui au patient. Ces frottis cytologiques préparés par le dentiste ou son assistante sont envoyés pour examen au laboratoire de pathologie ou de cytologie.

L'auteur, pour stimuler l'intérêt du praticien pour ce genre d'examen, énumère des conseils pour prélever des desquamations et il décrit brièvement le mécanisme responsable de cette exfoliation de cellules.

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Medical College,
University of Manitoba

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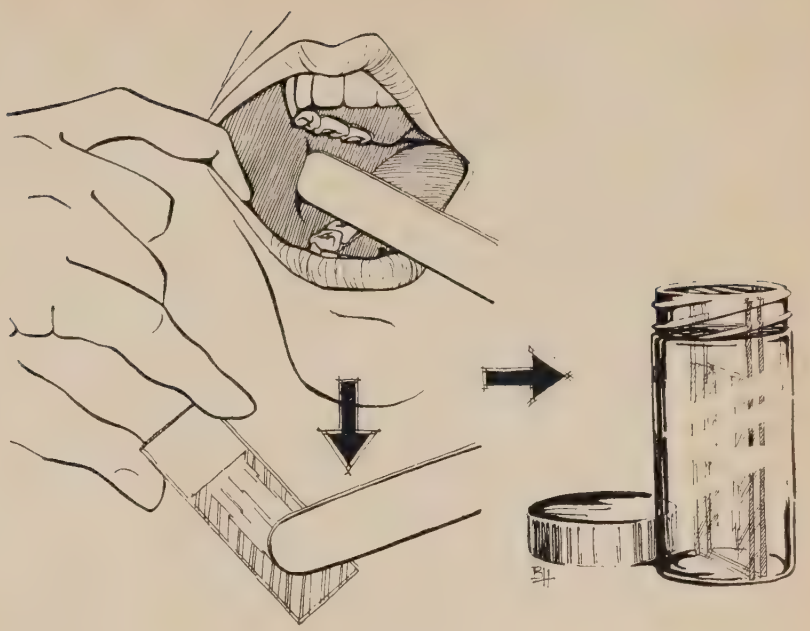
Cytodetection technique for oral cancer

C. H. M. Williams,
D.D.S., B.Sc.D.,
Toronto, Ontario



The technique of examining the mouth and making a cytological smear to demonstrate the presence or absence of early cancer of the mouth is simple and accurate. It causes no discomfort to the patient. The use of oral smears, supplemented by biopsy if lesions are reported as suggestive of malignancy, renders an important health service to dental patients.

Materials

The materials needed in the office are:

1. Two mouth mirrors, or a mouth mirror and a wooden tongue depressor (or plastic instrument) for taking the smears.

2. Two glass microslides with frosted ends, on which the patient's name, the date, and the area of the mouth from which smear is made, are printed in pencil before making the smear.

3. A container in which slides may be immersed in 95 per cent alcohol or alternative fixative.

4. A slotted plastic tube into which the slides may be inserted for mailing.

5. A surgical gauze square, a cotton roll, or a mass of loose cotton.

Examination

1. The margins of the lower and then the upper lips should be inspected.

2. With the teeth closed or almost closed, the cheek is widely retracted and observations of the mucosa of the cheek, buccal folds, and gingiva are made in the area of the lower teeth from the right side around to the left side, and then in the upper area from the left side back to the right side.

3. With the mouth widely open, the tongue is lifted so that the floor of the mouth and the under surface of the tongue are visible.

4. The tip of the tongue is grasped with cotton and pulled well forward. The dorsum and particularly the root of the tongue are examined.

5. The hard and soft palates and oropharynx are inspected.

Technique for making smear

All abnormalities of the mucosa, no matter how innocent in appearance, should be examined by the smear technique.

1. Crusted lesions on the lip should be softened by application of a wet gauze pad for five to 15 minutes. The crust is then removed and the smear is made of the resulting exposed surface.

2. Markedly keratotic surfaces of the intra-oral mucosa should be gently scraped by a slowly rotating coarse diamond wheel in the dental engine, until a pink surface is exposed, before a smear is made.

3. A wooden tongue depressor is first dipped in water and then firmly scraped over the entire surface of the lesion. The material gained by scraping is spread on a glass microscope slide over an area of about one inch in circumference, by a rotary motion of the tongue depressor.

4. Flood the slide *immediately* with the fixative provided.

5. Make a second slide of the same area and fix as described above.

6. If more than one lesion exists in the mouth, make additional slides as described above.

7. Allow the slides to dry in air for 30 minutes.

8. Place the slides in the slotted container supplied, and mail to the laboratory, accompanied by an appropriate report form.

Significance of report

If the report, when returned to the dentist, is endorsed "no evidence of malignancy" or "negative," this simply means that there are no cells demonstrating malignancy in the sample supplied. At future visits, repeat smears should be made of the same lesions if they persist.

A report marked "inconclusive" or "suggestive of malignancy" should be followed by additional smears and a biopsy.

A "positive for malignancy" report should be followed by a biopsy, if not already taken, and if malignancy is confirmed, immediate arrangements for treatment should be made.

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Council on Research

Fluoride supplements for prevention of dental caries

Conseil des recherches

Remplacement du fluor pour la prévention de la carie dentaire

This statement is intended to supplement a previous statement by the Council on this subject published in the June 1963 English and November 1963 French sections of the Journal. This statement will be submitted for adoption at the Annual Meeting of the Canadian Dental Association, June 24 to July 1, 1964.

Introduction

The most effective and least expensive method of caries prophylaxis for the general population is adjustment of the fluoride content in community water supplies to a level of one part per million. Some upward adjustment of this level may be advisable in colder areas.[1]

In areas where communal water supplies do not exist, or where fluoridation is not yet in operation, and where the fluoride concentration in the drinking water is less than 0.7 ppm, alternative methods of fluoride administration should be considered in order to extend the benefits of fluorides to such areas. It should be emphasized however, that, from a public health standpoint, home administration of fluoride is not a dependable substitute for communal fluoridation of drinking water, since to be effective the former requires an extensive period of exacting and intelligent co-op-

Cette opinion sera soumise à la réunion annuelle de l'Association dentaire canadienne, qui aura lieu du 24 juin au 1er juillet 1964.

Avant-propos

La méthode la plus efficace et la moins coûteuse, pour prévenir la carie dentaire au sein d'une population, consiste à ajouter à l'eau de consommation des fluorures, pour que cette eau en contienne une partie par million. Il faut, dans certaines régions où la température est plus froide, augmenter légèrement cette proportion.[1]

Certaines régions n'ont pas d'aqueduc, d'autres n'ont pas encore la fluoration ou encore la teneur de l'eau en fluor est d'une concentration moindre que 0.7 ppm; il faut donc, pour que leurs habitants puissent jouir des bienfaits du fluor, songer à d'autres méthodes. Soulignons toutefois qu'au point de vue santé publique, l'utilisation du fluor dans les domiciles ne constitue pas une mesure qui remplace avantageusement la fluoration de l'eau des aqueducs, car l'utilisation du fluor à la maison, pour atteindre son but, nécessite, pour calculer les doses avec précision, la collaboration intelligente des membres de la famille. Il y a maintenant suffisamment de données

TABLE 1 Suggested prescription for fluoride.*[2]

(a) Stock fluoride solution (1.0 mg. F^- per ml.)

℞ sodium fluoride 0.11 Gm.
water to 50 ml.

Supply with dropper graduated for 0.25 ml. and 0.50 ml.

Sig.: Keep out of reach of children. Do not exceed recommended dosage.

(b) Fluoride tablets (0.25 mg. F^- per tablet)

℞ sodium fluoride 0.55 mg.

Supply: 200 tablets

Sig.: Keep out of reach of children. Do not exceed recommended dosage.

(For convenience, single-scored tablets, containing 2.2 mg. NaF (1.0 mg. F^-), may be prescribed for older children.)

*Proprietary preparations of sodium or potassium fluoride, in solution or in tablet form, which permit simple and accurate modulation of dosage according to age and natural fluoride content of water as indicated in Table 2 may be confidently used.

TABLEAU 1 Modèle d'ordonnance pour le fluor.*[2]

(a) Solution de fluor préparée à l'avance (1.0 mg. F^- per ml.)

℞ fluorure de sodium 0.11 Gm.
eau jusqu'à 50 ml.

Remettre avec compte-gouttes gradué pour 0.25 ml. et 0.50 ml.

Sig.: Tenir hors de la portée des enfants. Ne pas dépasser la dose.

(b) Comprimés de fluor (0.25 mg. F^- par comprimé)

℞ fluorure de sodium 0.55 mg.

Remettre: 200 comprimés

Sig.: Tenir hors de la portée des enfants. Ne pas dépasser la dose.

(On peut prescrire pour des enfants plus âgés des comprimés contenant 2.2 mg. NaF (1.0 mg. F^-)

*On peut se servir sans danger de produits commerciaux de fluorure de sodium ou de potassium, en solution ou en comprimés, pour ajuster facilement et exactement la dose selon l'âge et selon la teneur de l'eau naturelle en fluor, tel qu'indiqué dans le Tableau 2.

eration in the individual household. There is at present sufficient information regarding fluoride concentrates and caries prevention to conclude that such supplements, if properly used, will reduce the incidence of caries in children.[2] It is not yet possible to state how the degree of protection from home administration compares with regular consumption of communally fluoridated drinking water.

Specific techniques of fluoride supplementation

(a) *Use of Home Fluoridated Water.* — The procedure which most nearly duplicates communal fluoridation in principle is the use in the home of water which has been adjusted to contain 1 ppm of fluoride. Practical details for the preparation of such drinking water in the home are given in Tables 1 and 2. If this water is used for all drinking and cooking purposes the method would duplicate communal fluoridation, and as such would be expected to yield similar results. This is the method of choice for administration of fluoride to infants since water intake is the regulator of the amount of fluoride

au sujet des comprimés de fluor et sur leur effet sur la carie dentaire pour conclure que ces suppléants, s'ils sont utilisés à bon escient, peuvent réduire l'incidence de la carie chez les enfants.[2] On ne peut pas encore comparer les résultats de l'utilisation de comprimés de fluor avec ceux de la consommation régulière d'eau publique à laquelle on a ajouté du fluor.

Méthodes particulières de remplacer la fluoration

(a) *Consommation d'eau fluorée à la maison.* — La méthode qui en principe ressemble le plus à la fluoration de l'eau des aqueducs consiste à utiliser à la maison de l'eau dont la teneur en fluor a été portée à 1 ppm. On trouve dans les Tableaux 1 et 2 des conseils pratiques sur la façon de préparer cette eau. Cette façon de faire, si on se sert uniquement de cette eau comme boisson et dans les aliments, se compare à la fluoration de l'eau publique et elle devrait donner les mêmes résultats; elle constitue le moyen idéal pour donner du fluor aux bébés,

ingested. Practical considerations may necessitate use of alternative procedures described in (b) below.

(b) *Use of Fluoride Concentrates.* — For children who consume little water, or where water is normally drunk from several sources each day, as for children attending school, the practical technique for administering fluoride is as a supplement given daily dissolved in a small volume of water or other liquid.

The best estimate that can be made at present of a suitable total daily dosage of supplemental fluoride is based on the average computed fluoride intake of children of comparable ages living in fluoridated areas. The recommended dosage of supplemental fluoride according to age and quantity of fluoride already present in natural water supplies is shown in Table 3. The increases in the amount of fluoride from infancy through childhood to early adolescence correspond to the increase in intakes which occur in communally fluoridated areas as children grow older.

Examples of practical means of supplying these dosages are indicated in Tables 1 and 4. Some proprietary fluoride prep-

car, en mesurant leur consommation d'eau, on règle aussi celle du fluor. Cependant, on devra peut-être pour des questions d'organisation utiliser l'autre méthode décrite en (b).

(b) *Usage des concentrés de fluor.* — On peut chez les enfants qui boivent peu ou qui boivent à différents endroits durant la journée, par exemple, ceux qui vont à la classe, leur donner du fluor tous les jours, en le dissolvant dans un peu d'eau ou d'autre boisson. On estime actuellement la quantité idéale de fluor que les enfants devraient prendre, tous les jours, en se basant sur des moyennes de fluor consommé par des enfants de divers âges qui vivent dans des régions où l'eau est fluorée.

La quantité recommandée selon l'âge et selon la teneur naturelle en fluor de l'eau de la région se trouve dans le Tableau 3. L'augmentation de la dose de fluor, de la plus tendre enfance jusqu'à l'adolescence, correspond à l'augmentation de la consommation qui se produit durant la même période chez les enfants qui vivent dans des régions où l'eau publique est fluorée. On trouve dans le Tableau 1 et dans le Tableau 4 des moyens pratiques de fournir les quantités

TABLE 2 • TABLEAU 2 Method of fluoride administration by household use of fluoridated water • Façon de donner du fluor à la maison avec de l'eau fluorée.[2]

Formulation: Stock fluoride solution (1.0 mg. F- per ml.) or fluoride tablets (0.25 mg. F- per tablet, crushed) are added to 1 quart of water in the quantities shown depending upon the natural fluoride ion content of the existing water supply.

Préparation: Des solutions de fluor préparées à l'avance (1.0 mg. F- par ml.) ou des comprimés de fluor écrasés (0.25 mg. F- par comprimé) sont ajoutés à une pinte d'eau à la quantité indiquée selon la teneur en ions de fluor de l'eau naturelle de la région.

Prescription	Natural fluoride ion content of existing water Teneur en ions de fluor de l'eau naturelle			Ordonnance
	0-0.25 ppm	0.25-0.50 ppm	0.50-0.75 ppm	
Stock fluoride solution (1 mg. F-/ml.)	1.0 ml.	0.5 ml.	0.25 ml.	Solution d'eau fluorée à l'avance (1 mg. F-/ml.)
Sodium fluoride tablet (0.25 mg. F-/tab.)	4 tablets comprimés	2 tablets comprimés	1 tablet comprimé	Comprimés de fluorure de sodium (0.25 mg. F-/comp.)

Administration: To be used for all drinking purposes, preparation of juices and formulae, and for cooking.
Posologie: A être utilisé comme boisson ordinaire, pour préparer des jus et des boissons et pour la cuisson des aliments.

TABLE 3 • TABLEAU 3 Recommended dosage of fluoride (mg. F⁻) according to age and natural fluoride content in water supplies • Posologie recommandée pour le fluor (mg. F⁻) selon l'âge et la teneur de l'eau naturelle en fluor.[2]

Age	Natural fluoride ion content in water, mg./litre (or ppm) Teneur en ions de fluor dans l'eau naturelle, mg./litre (ou ppm)				Age
	0.-0.25	0.25-0.50	0.50-0.75	0.75+	
0-12 mos.	0.25	0	0	0	0-12 mois
12 mos.-4 yrs.	0.50	0.25	0	0	12 mois-4 ans
4-8 yrs.	0.75	0.50	0.25	0	4-8 ans
8-12 yrs.	1.00	0.75	0.50	0	8-12 ans

No fluoride recommended for pregnant women (see text).
Il n'est pas nécessaire que la mère enceinte prenne du fluor (voir texte).

arations can also be adapted to supply the dosages indicated.

There are no hazards when fluoride supplements are used by reliable families in the manner prescribed. To safeguard against accidental poisoning of small children, it is recommended that no more than 60 mg. of fluoride ion be dispensed at one time. This amount of fluoride is sufficient for two months use at a rate of one milligram of fluoride ion per day, and is well below the lethal dose. The latter is approximately two to five grams of fluoride ion for adults and corresponds to an estimated dose of 350 to 700 mg. of fluoride ion for a 10 kg. child. The supply of

désirables. On peut aussi adapter des solutions de fluor préparées à l'avance pour répondre aux besoins.

Les familles sérieuses peuvent sans danger utiliser ces suppléants de fluor, à condition d'adhérer aux recommandations. On recommande, pour parer aux accidents d'empoisonnement chez les jeunes enfants, de ne pas préparer à la fois plus de 60 milligrammes d'ions de fluor. Cette quantité de fluor est suffisante pour deux mois, à raison d'un milligramme d'ions de fluor par jour, ce qui est bien au-dessous de la dose fatale. Cette dose dangereuse se situe de deux à cinq grammes d'ions de fluor, pour les

TABLE 4 • TABLEAU 4 Method of fluoride administration by use of fluoride supplements • Façons de donner du fluor en utilisant des suppléants de fluor.[2]

Administration: Stock fluoride solution (1.0 mg. F- per ml.) or fluoride tablets (0.25 mg. F- per tablet) are administered according to the following schedule, once daily. Tablets should be crushed and dissolved in formula, water, milk or juice. The schedule makes allowance for age of child and natural fluoride ion content of existing drinking water supply.
Posologie: On fait prendre, une fois par jour, des solutions de fluor préparées à l'avance (1.0 mg. F- par ml.) ou des comprimés de fluor (0.25 mg. F- par comprimé) d'après le barème suivant. On écrase les comprimés et on les fait prendre dans de l'eau, du lait ou des jus. Le barème tient compte de l'âge de l'enfant et de la teneur en ions de fluor de l'eau naturelle.

Age of child	Natural fluoride ion content of existing water Teneur en ions de fluor de l'eau naturelle						Age de l'enfant
	0-0.25 ppm		0.25-0.50 ppm		0.50-0.75 ppm		
	Stock soln. ml.	Tablets Comprimés	Stock soln. ml.	Tablets Comprimés	Stock soln. ml.	Tablets Comprimés	
0-12 mos.	0.25	1	0	0	0	0	0-12 mois
12 mos.-4 yrs.	0.50	2	0.25	1	0	0	12 mois-4 ans
4-8 yrs.	0.75	3	0.50	2	0.25	1	4-8 ans
8-12 yrs.	1.00	4	0.75	3	0.50	2	8-12 ans

fluoride tablets or solution should be kept out of reach of children.

Mode of action of fluoride

For optimum benefits to the individual tooth the ingestion of fluoride must be commenced during the period of pre-eruptive maturation of the surface of enamel. For example, the first permanent molar will receive optimum protection from fluorides even if the child does not commence ingestion of fluoridated water until three or four years of age, although development of the first molar crown is well advanced at that age. This phenomenon is explained on the basis of fluoride deposition on the surface of enamel, prior to eruption, in sufficient concentrations to reduce dental caries.

Since most of the enamel surface of the deciduous teeth is formed after birth, administration of fluoride to gravid women should not be necessary to obtain a significant caries prophylactic effect on the deciduous teeth of the offspring. It should be noted that there is no proved contraindication to fluoride administration during pregnancy; it is simply not necessary.

Fluoride administration should commence shortly after birth and continue until the second permanent molars have erupted at the age of 12 to 14 years. The third permanent molars will not benefit from this program. Since these teeth develop much later in life, and are often removed, a reasonable age at which to stop administration of supplemental fluoride is after eruption of the second permanent molars.

Topical applications of fluoride using stannous fluoride, sodium fluoride, or fluoride-phosphate solutions, may be advisable either in conjunction with, or after cessation of, systemic fluoride therapy in order to increase fluoride concentration on the enamel surface. The use of a dentifrice containing a satisfactory stabilized form of fluoride is also recommended both in childhood and during adult life in order to increase further the amount of fluoride which is deposited on the enamel surface.

adultes, et de 350 à 700 mg. d'ions de fluor, pour un enfant de 10 kg. Les solutions ou les comprimés de fluor devraient être gardés hors de la portée des enfants.

Mode d'action des fluorures

Les fluorures, pour que les dents en tirent le maximum de profit, devraient être donnés dès la période où l'émail des dents se forme, c'est-à-dire avant leur éruption. Par exemple, la première molaire permanente, même si la calcification de sa couronne est assez avancée à cet âge, reçoit le plus grand bénéfice du fluor, même si l'enfant ne commence pas à boire de l'eau fluorée avant qu'il ait trois ou quatre ans.

On explique ce phénomène par le fait qu'il suffit que le fluor se dépose en concentration suffisante sur la surface de l'émail, avant l'éruption de la dent, pour que celui-ci soit protégé contre la carie.

La surface d'émail de la plupart des dents primaires se forme après la naissance; il n'est donc pas nécessaire de prescrire du fluor aux femmes enceintes pour prévenir la carie dentaire chez leurs enfants. Toutefois, il n'y a pas d'inconvénient à prescrire du fluor durant la grossesse.

Le fluor devrait être donné peu de temps après la naissance et continué jusqu'à ce que les deuxièmes molaires permanentes soient sorties, c'est-à-dire entre 12 et 14 ans. Les troisièmes molaires permanentes ne bénéficient pas de cette attention. Ces dents se développent plus tard et elles sont souvent extraites. L'époque où doit normalement arrêter l'absorption de fluor se situe donc après l'éruption des deuxièmes molaires permanentes.

L'application topique de fluor — fluorure d'étain, fluorure de sodium et fluorure-phosphate — est à conseiller soit en même temps, soit après l'absorption de fluorure dans l'organisme, de façon à augmenter la concentration de fluor sur la surface d'émail des dents. L'emploi d'un

Multiple vitamin-fluoride supplements

Although some of the commercially available vitamin-fluoride combinations may satisfactorily answer the requirements in the individual cases, these products are considered to have a number of important drawbacks. The fixed formulation of the multiple preparations does not permit control over the dosage of individual constituents. Thus it is not feasible to adjust the supplemental fluoride intake for the age of the patient, nor for concentrations of fluoride already present in the drinking water. Similarly it is not readily possible to modulate the amount of supplemental vitamins (e.g. vitamin D) in order to compensate for the variable and frequently excessive intakes obtained from commercially enriched foods. Since a considerable time must elapse before the deleterious effects of excessive or insufficient intake of fluoride or vitamin D will become manifest, misuse of the combined medication would not be readily apparent. Therefore at the present time the use of vitamin-fluoride preparations is not recommended until long-range studies establish their efficacy in clinical practice.

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dentifrice contenant une forme stabilisée de fluor est recommandé, tant durant l'enfance qu'à l'âge adulte, encore pour accroître la quantité de fluor déposé sur l'émail.

Mélange de fluor et de vitamines

Certains produits commerciaux contiennent du fluor combiné à des vitamines; ces formules, tout en répondant aux exigences de certains individus, ont plusieurs inconvénients. Il est d'abord difficile, à cause de la combinaison de plusieurs éléments, de contrôler le dosage de chacun d'eux. On ne peut ainsi fixer la quantité du suppléant de fluor nécessaire selon l'âge de l'individu, ni la concentration de fluor déjà présente dans l'eau de consommation. De même, avec ces produits, il est impossible de marier la dose de vitamines supplémentaires (p.e., la vitamine D) avec la quantité qu'en contiennent déjà les aliments, souvent en excès. On ne peut se rendre compte qu'après une période de temps assez longue des effets désastreux d'une consommation trop considérable de vitamines D et de fluor. Un excès de cette combinaison ne manifeste pas de signe à brève échéance. C'est pourquoi, à l'heure actuelle, l'utilisation de produits vitamines - fluor n'est pas recommandée jusqu'à ce que des recherches de longue haleine aient prouvé leur efficacité dans le domaine clinique.

Fluoridation • Dentists have an obligation to convince their patients that fluoridation can reduce dental caries safely and inexpensively by about two-thirds.

Carbohydrates and dental caries

Council on Research

This statement will be submitted for adoption at the Annual Meeting of the Canadian Dental Association, June 24 - July 1, 1964.

The presence of bacteria in the mouth and a suitable local substrate for bacterial metabolism (generally carbohydrate) are two prerequisites without which dental caries cannot exist. Studies on "germ-free" animals indicate that caries cannot occur in spite of a high carbohydrate diet when bacteria are not present.[1,2] Experimental introduction of bacteria to germ-free animals permits caries to occur.[1,3] Furthermore, the substrate for metabolism of the bacteria must be present around the teeth. Rats that are highly susceptible to caries do not develop lesions when fed a high sugar diet by stomach tube, although the teeth of litter mates eating the same diet for identical periods of time do become carious.[4]

Evidence that refined carbohydrates are the main foodstuff involved in the initiation of caries has evolved from several sources. It has been impossible to produce typical carious lesions in experimental animals without including carbohydrate in the diet. A high level of carbohydrate, particularly in a form that adheres to teeth, is associated with a high incidence of dental caries in rats. Withdrawal of the carbohydrate component of the diet causes a reduction in caries rate.[5]

Evidence from studies on human beings also indicts refined carbohydrates in the caries process. The occurrence of dental

Les hydrates de carbone et la carie dentaire

Conseil des recherches

Cette opinion sera soumise à la réunion annuelle de l'Association dentaire canadienne, qui aura lieu du 24 juin au 1er juillet 1964.

La carie, pour se produire, a besoin de deux facteurs essentiels: des bactéries et un substrat favorable à leur métabolisme (généralement, des hydrates de carbone). Des recherches entreprises sur des animaux "sans bactéries" ont montré que la carie, malgré une consommation considérable d'hydrates de carbone de leur part, ne peut se produire sans la présence de bactéries.[1,2] De plus, il faut que le substrat qui sert au métabolisme des bactéries se trouve autour des dents.[1,3] Des rats sujets à la carie n'en font pas quand on les nourrit abondamment de sucre directement dans l'estomac; tandis que d'autres de la même portée, nourris des mêmes aliments, par la bouche, durant des périodes de temps identiques, font des caries dentaires.[4]

D'autres recherches prouvent que les hydrates de carbone raffinés constituent l'aliment le plus responsable de la carie. Il n'a pas été possible, chez des animaux de laboratoire, de produire des lésions typiques de carie sans mettre dans leurs aliments des hydrates de carbones. On note un fort pourcentage de carie dentaire chez des rats qui consomment de grandes quantités d'hydrates de carbone, particulièrement sous une forme qui adhère aux dents. On constate une baisse dans le taux de la carie quand on enlève de leur nourriture les hydrates de carbone.[5]

On a fait les mêmes constatations chez l'homme au sujet des relations qui exis-

caries among "primitive" people, though variable, is less than in so-called "civilized" people. As primitive people adopt the diet of the civilized communities their caries rate increases. One of the major changes in diet is the consumption of much increased amounts of refined carbohydrate.[6-8]

Furthermore, if excessive sugar is reduced in the diet of caries-active individuals, their caries rate decreases.[9-11] Finally, the marked reduction in caries rate noted in many countries during World War II directly parallelled the reduction in availability of refined sugars.[12-14]

Carbohydrates influence the caries process by serving as a substrate for bacterial metabolism. Bacteria obtain energy by breaking down carbohydrates. As a by-product of their metabolism organic acids are excreted. The acids thus produced promote decalcification of the tooth.[15] After ingestion of sugar the pH on a carious surface drops significantly within a few minutes[16] and it may become low enough to promote tooth decalcification. Bacteriological caries activity tests indicate that individuals who are caries-active possess a bacterial flora with high acid producing characteristics.[17-18] Evidence therefore that incriminates acid as one of the mechanisms in the caries process also incriminates sugar.

The severity of caries resulting from refined carbohydrate ingestion does not depend solely on the amount of carbohydrate consumed. Severity varies both with the form of the sugar and the time at which it is eaten. The risk of caries is greatest when carbohydrate, in the form of concentrated free sugars (mono- and disaccharides), of a type that adheres firmly to teeth, is eaten between meals.[11,19,20] Such carbohydrates are difficult to remove from tooth surfaces, and they have a prolonged clearance time from saliva. There is a direct and consistent relationship between caries experience and the frequency of eating be-

tent entre les hydrates de carbone et la carie dentaire. L'incidence de la carie chez les peuples "sauvages" est, en général, moindre que chez les peuples dits "civilisés." Les peuples primitifs souffrent davantage de la carie à mesure que leur alimentation s'apparente à celle des groupes civilisés. Et l'une des modifications importantes apportées à leur alimentation consiste dans l'introduction des hydrates de carbones.[6-8]

De plus, chez les personnes susceptibles à la carie, le taux de la carie baisse, si elles diminuent leur consommation de sucre.[9-11] Enfin, la diminution de la carie remarquée dans plusieurs pays au cours de la Deuxième Grande Guerre s'établit directement et parallèlement à la diminution des stocks de sucre raffiné.[12-14]

Les hydrates de carbone favorisent la carie en servant de substrat au métabolisme des bactéries; celles-ci acquièrent leur énergie en fractionnant les hydrates de carbone. Comme sous-produits de ce métabolisme, ils secrètent des acides organiques et ces acides favorisent la décalcification de la dent.[15] Le pH d'une zône cariée baisse d'une façon notoire quelques minutes après l'ingestion de sucre,[16] à un point tel qu'il favorise la décalcification de la dent. Des expériences entreprises sur l'effet des bactéries sur la carie montrent que les personnes qui en souffrent ont une flore bactérienne qui produit beaucoup d'acide.[17,18] C'est pourquoi, les recherches, qui mettent en cause les acides comme des facteurs du mécanisme de la carie, incriminent aussi le sucre.

La gravité de la carie engendrée par la consommation d'hydrates de carbone ne dépend pas seulement de la quantité ingérée: elle se rapporte au genre du sucre et au moment de sa consommation. La carie peut survenir quand l'individu mange entre les repas des hydrates de carbone sous la forme de sucres libres concentrés (des mono- et des di-saccharides) d'un genre qui adhère fortement aux dents.[11,19,20] Ces carbohydrates s'enlèvent difficilement des dents et la salive ne les dissout que lentement. Il y a un rapport constant et direct entre

tween-meal items of high sugar content and high degree of adhesiveness.[19,20] The evidence indicates that under Canadian dietary conditions, added sugar in the form of candies, syrups, jams, and concentrated sweets generally, particularly when consumed between meals, is the main factor that should be emphasized in caries prevention.

It is not axiomatic, however, that people who eat sugar will develop dental caries. While carbohydrate is one of the more important factors involved in caries ætiology, it is not the only one. The caries process is influenced by a number of variables, not all understood. A more complete understanding will be possible when, through research, the influence on caries of other factors such as the role of saliva, tooth form and structure, the mineralization process, and nutrition and systemic conditions, has been explored more extensively, and when the nature of caries immunity is more fully understood.

l'incidence de la carie et l'habitude de manger souvent entre les repas des aliments qui ont une teneur élevée en sucre et qui collent beaucoup aux dents.[19,20] En considérant l'alimentation en usage au Canada, le meilleur conseil qui pourrait être donné à la population pour prévenir la carie serait de diminuer, surtout entre les repas, la consommation superflue de sucre, comme des bonbons, du sirop, de la confiture et des sucreries en général.

Il ne s'ensuit pas nécessairement que les gens qui mangent du sucre souffrent de carie. Il est vrai que la consommation d'hydrates de carbone est un des facteurs importants de la carie dentaire, mais ce n'est pas le seul. On connaîtra davantage les causes de la carie dentaire quand des recherches auront approfondi l'influence d'autres facteurs tels que la salive, la forme et la structure des dents, le processus de minéralisation, la nutrition et l'organisme en général. Alors, les phénomènes de l'immunité à la carie seront mieux compris.

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Dental students' register, 1963-1964

Bureau of Economic Research

Enrolment. — Total undergraduate enrolment for the current academic year in Canada's six dental schools is 1,177. There are 72 more students in the first dental year than in the graduating year. Three of the schools — Dalhousie, McGill and Alberta — have their first years filled to capacity. Toronto and Manitoba are each only one student short of capacity (Table 1).

The proportion of women to total students remains fairly constant at 4.6 per cent. Toronto had the highest percentage of female dental students (7.1) as well as the largest number (34) (Table 2).

Fifty-three students are registered for further study at four schools (Montreal, Toronto, Manitoba and Alberta). Nineteen are proceeding to a master's or Ph.D. degree; 26 are studying for a bachelor's degree, diploma or certificate, and eight others are taking other postgraduate instruction (Table 3). Thirty-one of these students are in specialty programs, the majority in orthodontics (19), while seven are in public health, three in oral surgery and two in periodontics (Table 4).

Dental Hygienists. — The dental faculty of the University of Manitoba accepted its first class of dental hygienists last September. The school can accommodate 12 students in each of the two years of the course. In the four schools offering dental hygiene programs (Dalhousie, Toronto, Manitoba and Alberta), 167 students are enrolled, 93 in the first year and 74 in the second. The courses are operat-

Nombre des étudiants en chirurgie dentaire, 1963-1964

Bureau des recherches économiques

Inscription.—Le nombre total des inscriptions des étudiants dans les facultés dentaires du Canada pour l'année académique actuelle se chiffre à 1,177. Il y a 72 étudiants de plus dans la première année que dans la quatrième année. Dans trois facultés — Dalhousie, McGill et Alberta — les cadres de première année sont complètement remplis. A Toronto et Manitoba, il ne manque qu'un étudiant en première année pour que les cadres soient remplis (Tableau 1).

La proportion des femmes en rapport avec le nombre total des étudiants reste à peu près la même: 4.6 pour cent. Toronto a le plus haut pourcentage d'étudiantes (7.1) et aussi le plus grand nombre (34) (Tableau 2).

Cinquante-trois étudiants poursuivent des études supplémentaires à quatre facultés (Montréal, Toronto, Manitoba et Alberta). Dix-neuf poursuivent des études menant à une maîtrise ou à un Ph.D.; 26 pour un degré, un diplôme ou un certificat de bachelier et huit autres ont entrepris des études post-scolaires (Tableau 3). Trente-et-un étudiants participent à des programmes spéciaux; la majorité d'entre eux sont en orthodontie (19), sept en hygiène publique, trois en chirurgie et deux en périodontie (Tableau 4).

Hygiénistes dentaires.—La faculté dentaire de l'Université de Manitoba a commencé, en septembre dernier, à donner un cours à des hygiénistes dentaires. L'école peut recevoir 12 étudiantes dans chacune des deux années du cours. Il y a 167 étudiantes, 93 en première année et 74 en deuxième année, dans les quatre facultés qui donnent un cours d'hygiénistes den-

TABLE 1 Undergraduates enrolled in Canadian dental schools, 1963-1964 • Etudiants sous-gradués dans les facultés dentaires du Canada, 1963-1964.

Dental school Faculté	Total	Year - Année			
		1	2	3	4
Dalhousie	75	25	24	16	10
McGill	143	36	38	31	38
Montréal	184	50	53	53	28
Toronto	481	127	117	118	119
Manitoba	103	32	25	27	19
Alberta	191	57	51	42	41
Total	1,177	327	308	287	255

TABLE 2 Women dental students enrolled in Canadian dental schools, 1963-1964 • Etudiantes dans les facultés dentaires du Canada, 1963-1964.

Dental school Faculté	Total		Year - Année			
	Number Nombre	Per cent Pourcentage	1	2	3	4
Dalhousie	3	4.0	1	0	1	1
McGill	3	2.1	2	1	0	0
Montréal	9	4.9	3	3	2	1
Toronto	34	7.1	9	9	6	10
Manitoba	2	1.9	1	0	0	1
Alberta	3	1.6	1	1	0	1
Total	54	4.6	17	14	9	14

TABLE 3 Dental graduates registered at Canadian universities for further study, 1963-1964 • Diplômés inscrits dans les facultés dentaires du Canada pour des études post-universitaires, 1963-1964.

Dental school Faculté	Graduate* Gradués*	Postgraduate† Post-scolaires†	Special‡ Spéciaux‡
Dalhousie	0	0	0
McGill	0	0	0
Montréal	8	3	0
Toronto	4	23	7
Manitoba	3	0	1
Alberta	4	0	0
Total	19	26	8

*Graduate students are those dental graduates registered in the graduate school of a university and proceeding to a master's or Ph.D. degree.
L'expression 'gradués' veut dire que ces diplômés sont inscrits à l'université, dans l'école pour diplômés, pour suivre un cours qui mène à une maîtrise ou à un Ph.D.

†Postgraduate students are dental graduates registered in the dental faculty proceeding to a degree (e.g. the B.Sc.D.), diploma or certificate.
L'expression 'post-scolaires' veut dire que ces diplômés sont inscrits à la faculté dentaire pour y suivre un cours qui mène à un degré (p.e., B.Sc.D.), un diplôme ou un certificat.

‡Special students are dental graduates who are taking postgraduate instruction in the dental faculty but are not proceeding to a recognized university degree, diploma, or certificate.
L'expression 'spéciaux' veut dire que ces diplômés sont inscrits à la faculté dentaire pour y suivre un cours post-scolaire qui ne mène pas à un degré, diplôme ou certificat officiel de l'université.

TABLE 4 Dental graduates registered in each year of specialty programs at Canadian universities, 1963-1964 • Diplômés inscrits dans chaque année de cours de spécialités dans les universités canadiennes, 1963-1964.

Specialty	Total	Year - Année			Spécialité
		1	2	3	
Dental public health	7	7			Hygiène dentaire publique
Oral surgery	3	1	1	1	Chirurgie buccale
Orthodontics	19	10	9		Orthodontie
Periodontics	2	1	1		Périodontie
Total	31	19	11	1	Total

ing at capacity at Dalhousie and Manitoba but are one student short at Toronto and five short at the University of Alberta (Table 5).

Over the past five years, the number of first-year dental hygiene students has increased from eight to 93. The total number of dental hygiene students in the 1963-64 term is twelve times greater than it was in the 1959-60 term (Table 6).

Wastage. — Between last year's freshman class and this year's sophomore class, there was an 11 per cent wastage rate. The majority of students did not go on to second year because they failed (27 out of 37). Failure rates ranged from zero at McGill to 19 per cent at the University of Manitoba (Table 7).

Graduates. — In 1963, 260 dentists graduated from Canadian dental schools. Thirty-four of them came from foreign countries. Of the 260 graduates, seven were women, four of whom were foreign born. Over the past few years well over one-half of the women graduates in dentistry have been foreign born (Table 8).

The average age of dental graduates is 25 years, ranging from 24 years at the University of Toronto to 27½ years at McGill University (Table 9).

TABLE 5 Dental hygiene students enrolled in Canadian dental schools, 1963-1964 • Hygiénistes dentaires inscrites dans les universités canadiennes, 1963-1964.

Dental school Faculté	Total	Year - Année	
		1	2
Dalhousie	25	15	10
Toronto	93	49	44
Manitoba	12	12	
Alberta	37	17	20
Total	167	93	74

taires. Les cadres sont remplis à Dalhousie et à Manitoba; il manque une étudiante à l'Université de Toronto et cinq à l'Université d'Alberta (Tableau 5).

Depuis les cinq dernières années, le nombre des étudiantes en première année du cours d'hygiéniste dentaire a augmenté de huit à 93. Le nombre total des étudiantes en hygiène dentaire, pour l'année académique 1963-64, est douze fois plus considérable qu'il était au cours de l'année 1959-60 (Tableau 6).

Abandon des études.—Onze pour cent des étudiants qui étaient en première année, l'année dernière, ont abandonné leurs études avant d'entrer en deuxième année. Le plus grand nombre de ces étudiants ont laissé leurs études parce qu'ils avaient essuyé des échecs (27 sur 37). Le taux des échecs s'établit de zéro (à McGill) à 19 pour cent (à l'Université de Manitoba) (Tableau 7).

TABLE 6 Capacity of classes, number of dental hygienists enrolled in Canadian dental schools, 1959-1963 • Disponibilités des classes, nombre des hygiénistes dentaires inscrites dans les universités canadiennes, 1959-1963.

Year Année	Capacity Disponibilités	Students - Etudiants	
		1st year 1ière année	2nd year 2ième année
1959-60		8	6
1960-61		21	8
1961-62		69	16
1962-63	82	84	62
963-64	99	93	74

Capacity. — The current capacity of Canadian undergraduate dental classes is 339 students. Over the past decade, the capacity has increased 68 per cent. The dental hygiene course can accommodate 99 students. One dental hygienist can be trained for every 3.4 dentists graduated (Tables 10 and 11).

Only the Université de Montréal is planning an expansion program. Its tentative date of completion is 1968. When finished the school will be able to accommodate 96 dental students and an undetermined number of dental hygiene students.

Advanced Status. — All six schools have students enrolled who were admitted with advanced status. Ten of these students were from the United Kingdom, eight

Diplômés.—260 dentistes ont reçu leur diplôme au Canada, en 1963. Trente-quatre d'entre eux venaient de pays étrangers. De ces 260 diplômés, sept étaient des femmes, dont quatre étaient nées dans des pays étrangers. Depuis quelques années, beaucoup plus de la moitié des femmes qui ont obtenu des diplômes de dentiste étaient nées à l'étranger.

La moyenne d'âge des nouveaux diplômés s'établit à 25 ans, soit de 24 ans à l'Université de Toronto à 27½ à l'Université McGill (Tableau 9).

Disponibilités. — Les facultés dentaires canadiennes peuvent actuellement recevoir un maximum de 339 étudiants. Depuis dix ans, leurs disponibilités ont augmenté de 68 pour cent. On peut recevoir 99 étudiantes en hygiène dentaire, c'est-à-dire qu'on peut former une hygiéniste pour 3.4 étudiants en chirurgie dentaire (Tableaux 10 et 11).

Seule la faculté dentaire de l'Université de Montréal se propose d'agrandir ses cadres; elle se propose de compléter son expansion en 1968. Elle pourra alors accueillir 96 étudiants et un certain nombre de jeunes filles en hygiène dentaire.

Diplômés aux études sous-graduées.—Les six facultés dentaires canadiennes ont au nombre de leurs étudiants des diplômés qui avaient complété leurs études avant leur admission. Dix de ces étudiants viennent du Royaume-Uni, huit d'Australie et 13 de divers pays d'Europe (Tableau 12).

TABLE 7 Wastage of first-year students, 1962-1963 • Abandon des études par des étudiants de première année, 1962-1963.

Dental school Faculté	Loss — Pertes		Reason — Raison		
	Students Etudiants	Per cent Pourcentage	Failed Echecs	Transferred Changements	Other Autres
Dalhousie	4	15.4	4	0	0
McGill	2	5.1	0	2	0
Montréal	12	19.7	9	2	1
Toronto	10	8.2	6	1	3
Manitoba	6	19.4	6	0	0
Alberta	3	5.7	2	1	0
Total	37	11.1	27	6	4

TABLE 8 Students graduating from Canadian dental schools, 1963 • Etudiants finissant leurs études dans les facultés dentaires canadiennes, 1963.

Dental school Faculté	Graduates — Diplômés			Per cent women Pourcentage femmes	Foreign-born women Femmes nées à l'étranger	Per cent foreign-born of all women Pourcentage des femmes nées à l'étranger
	Total	Men Hommes	Women Femmes			
Dalhousie	14	14	0	0.0		
McGill	31	31	0	0.0		
Montréal	37	37	0	0.0		
Toronto	124	118	6	4.8	3	50.0
Manitoba	22	21	1	4.5	1	100.0
Alberta	32	32	0	0.0		
Total	260	253	7	2.7	4	57.1

TABLE 9 Average age of graduates from Canadian dental schools, 1963 • Moyenne d'âge des étudiants dans les facultés dentaires canadiennes, 1963.

Dental school Faculté	Average age Moyenne d'âge
Dalhousie	26½
McGill	27½
Montréal	26
Toronto	24
Manitoba	26
Alberta	25
Total	25

TABLE 10 Capacity of undergraduate classes, Canadian dental schools, 1963-1964 • Disponibilités des classes sous-graduées, facultés dentaires canadiennes, 1963-1964.

Dental school Faculté	Capacity - Disponibilités	
	Dental students Etudiants	Hygienists Hygiénistes
Dalhousie	25	15
McGill	36	—
Montréal	60	—
Toronto	128	50
Manitoba	33	12
Alberta	57	22
Total	339	99

came from Australia and 13 from various European countries (Table 12).

Predental Education. — The majority of the undergraduate dental students (52 per cent) had two years of predental education. Twenty-nine per cent had obtained a Canadian bachelor's degree before entering dental school. About one-half of these students are at the Université de Montréal where a bachelor's degree is a predental requirement (Table 13).

Of the 1963 graduates, 84 (32 per cent) had prior bachelor of arts degrees. Thirty-seven of these graduates made up the entire graduating class from the Université de Montréal (Table 14).

Formation pré-dentaire.—La majorité des étudiants sous-gradués (52 pour cent) ont suivi, durant deux ans, des cours prédentaires. Vingt-neuf pour cent des étudiants ont obtenu un diplôme canadien de baccalauréat avant de commencer leurs études dentaires proprement dites. Environ la moitié de ceux-ci sont à l'Université de Montréal, où le baccalauréat constitue l'une des exigences d'admission (Tableau 13).

Au nombre de ceux qui ont terminé leurs études en 1963, 84 (32 pour cent) avaient des baccalauréats es arts. Trente-sept de ces diplômés formaient la classe des finissants de l'Université de Montréal (Tableau 14).

TABLE 11 Capacity of classes, number of first-year students and number of graduates, Canadian dental schools, 1954-1963 • Disponibilités des classes, nombre des étudiants de première année et nombre des diplômés, facultés dentaires canadiennes, 1954-1963.

Year Année	Capacity Disponibilités	1st year students Etudiants de 1ière année	Graduates Diplômés
1954-55	202	211	174
1955-56	202	199	168
1956-57	205	206	186
1957-58	205	194	203
1958-59	263	250	193
1959-60	307	279	215
1960-61	327	268	174
1961-62	338	320	225
1962-63	332	332	260
1963-64	339	327	NA*I

*Not available — Inconnu.

TABLE 12 Students admitted with advanced status to Canadian dental schools, 1963-1964 • Etudiants ayant déjà diplôme admis dans les facultés dentaires canadiennes, 1963-1964.

Country in which student graduated	Dental school — Faculté						Pays d'où l'étudiant a obtenu son diplôme
	Dalhousie	McGill	Montréal	Toronto	Manitoba	Alberta	
Australia				8			Australie
Europe			3	6	2	2	Europe
Great Britain	1	1		7		1	Grande-Bretagne
Haiti		1					Haïti
Middle East			2	1	1		Moyen Orient
Total	1	2	5	22	3	3	Total

TABLE 13 Predental university or equivalent training of undergraduates enrolled in Canadian dental schools, 1963-1964 • Formation prédentaire ou l'équivalent des étudiants inscrits dans les facultés dentaires canadiennes, 1963-1964.

Dental school Faculté	Years - Années			Canadian degree Diplôme canadien		Foreign degree Diplôme étranger	
	2	3	4	Bachelor Baccalauréat	Other Autre	Bachelor Baccalauréat	Other Autre
Dalhousie	7	19	15	31	0	2	1
McGill	33	24	8	53	0	20	5
Montréal	0	0	0	175	0	2	7
Toronto	399	16	6	33	0	6	21
Manitoba	47	19	5	29	0	0	3
Alberta	133	20	6	24	4	4	0
Total	619	98	40	345	4	34	37
	Percentage — Pourcentage						
	52.5	8.4	3.4	29.3	.3	2.9	3.2

TABLE 14 Graduates with prior bachelor's degree, Canadian dental schools, 1963 • Diplômés possédant baccalauréat avant études dentaires dans facultés canadiennes, 1963.

Dental school Faculté	Graduates with bachelor's degree Diplômés ayant baccalauréat	Per cent of total graduates Pourcentage du total des diplômés
Dalhousie	5	35.7
McGill	19	61.3
Montréal	37	100.0
Toronto	14	11.3
Manitoba	8	36.4
Alberta	1	3.1
otal	84	32.3

Residential Distribution. — Thirty-two Canadians are attending dental school in the United States while 39 Americans are at school in Canada (Table 15). Ontario and Quebec have the highest absolute number of dental students. Alberta, however, is far ahead of the other provinces in terms of students in relation to population. The province has one student for every 10,725 of its people. At the other extreme, New Brunswick has 40,933

Répartition des endroits d'origine des étudiants. — Trente-deux Canadiens font leurs études aux Etats-Unis et trente-neuf Américains au Canada (Tableau 15). Les provinces d'Ontario et de Québec ont le plus grand nombre absolu d'étudiants dentaires. L'Alberta, par ailleurs, devance les autres provinces au sujet du nombre des étudiants en rapport avec la population. Cette province a un étudiant par 10,725 de ses habitants. D'un autre côté, le Nouveau-Brunswick a un étudiant par 40,933 de ses habitants. La proportion, au niveau national, se chiffre à 1 par 16,856 (Tableau 16).

La figure 1 représente le nombre d'étudiants dentaires par 100,000 de population (par province) au cours des cinq dernières années. Depuis 1959-60, la proportion, au plan national, s'est améliorée de 4.9 à 5.9. La province d'Ontario, de Manitoba, de Saskatchewan et d'Alberta sont toutes au-dessus de ce niveau. Les provinces atlantiques, Québec et la Colombie britannique sont en-dessous du niveau national. L'Alberta est la province qui, sous ce rap-

TABLE 15 Residential distribution of Canadian dental students, 1963-1964 • Endroits de résidence des étudiants dentaires de nationalité canadienne, 1963-1964.

Residence	Total	Dental school — Faculté						
		Dalhousie	McGill	Montréal	Toronto	Manitoba	Alberta	American schools Facultés américaines
Newfoundland Terre-Neuve	17	14	1		1			1
Prince Edward Island Ile-du-Prince-Edouard	4	4						
Nova Scotia Nouvelle-Ecosse	27	25	1		1			
New Brunswick Nouveau-Brunswick	15	10		4	1			
Québec	257	4	77	173	1	1		1
Ontario	473	5	7	2	448	4		7
Manitoba	72					65	2	5
Saskatchewan	64			2	2	24	30	6
Alberta	131						126	5
British Columbia Colombie britannique	61	4	11		4	5	30	7
Canada	1,121	66	97	181	458	99	188	32

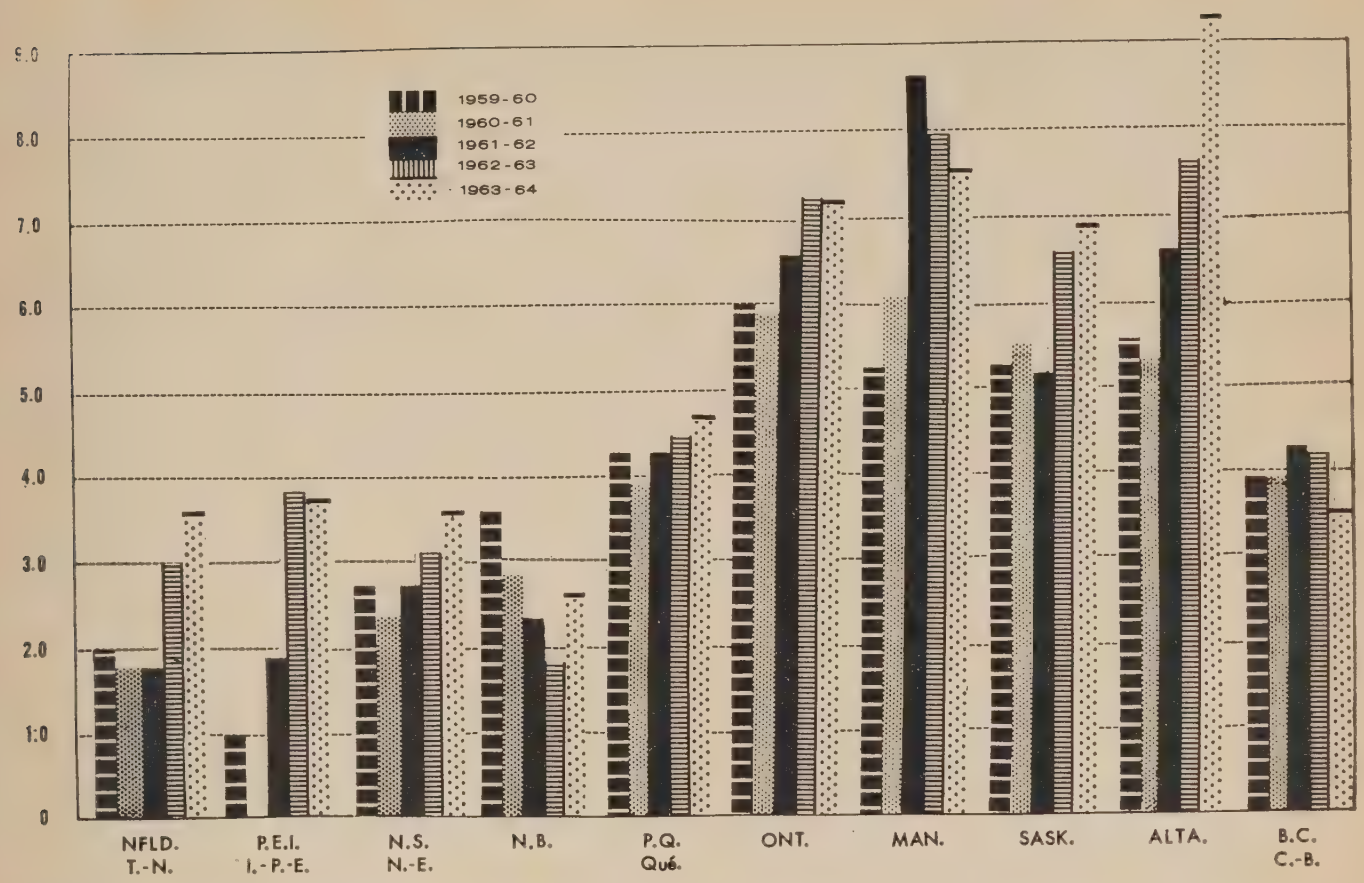


FIGURE 1 Dental students per 100,000 population, by province, 1959 - 63 • Nombre des étudiants dentaires par 100,000 de population, par province, 1959-63.

people for each dental student. The national ratio is 1:16,856 (Table 16).

Figure 1 represents the number of dental students per 100,000 population (by provinces) over the last five years.

port, fait le plus de progrès après trois ans. La proportion de Manitoba, après une poussée des plus encourageantes à 8.7 étudiants par 100,000 de population, a subi un recul à 7.6. Ce chiffre place le

TABLE 16 Ratio of Canadian dental students to population of home province, 1959-1963 • Proportion du nombre des étudiants dentaires en rapport avec la population de leur province d'origine, 1959-1963.

Province	1959-60	1960-61	1961-62	1962-63	1963-64
Newfoundland Terre-Neuve	1:49,889	1:57,375	1:58,625	1:33,571	1:28,294
Prince Edward Island Ile-du-Prince-Edouard	1:102,000		1:52,500	1:26,500	1:26,750
Nova Scotia Nouvelle-Ecosse	1:37,684	1:42,529	1:36,600	1:32,435	1:28,000
New Brunswick Nouveau-Brunswick	1:28,095	1:35,294	1:43,714	1:55,182	1:40,933
Québec	1:23,469	1:25,530	1:23,084	1:22,266	1:21,276
Ontario	1:16,533	1:17,056	1:14,816	1:13,609	1:13,632
Manitoba	1:18,830	1:16,345	1:11,544	1:12,635	1:13,194
Saskatchewan	1:18,792	1:18,200	1:19,125	1:15,246	1:14,578
Alberta	1:18,014	1:18,594	1:14,854	1:13,048	1:10,725
British Columbia Colombie britannique	1:25,323	1:25,903	1:23,042	1:23,700	1:27,787
Canada	1:20,544	1:21,334	1:18,615	1:17,371	1:16,856

Since 1959-60, the national ratio has improved from 4.9 to 5.9. Ontario, Manitoba, Saskatchewan and Alberta are all above the national average. The Atlantic provinces, Quebec and British Columbia fall below the Canadian figure. Alberta has made great progress in the past three years. Manitoba's ratio, after a most encouraging climb to 8.7 students per 100,000 population, has now declined to 7.6. This figure earns Manitoba second place among the provinces in terms of students per population (Table 17).

Of all students in Canadian dental schools, 88 (7.5 per cent) are from foreign countries. After the 39 from the United States, the largest numbers of foreign students come from the West Indies (19) and Great Britain (10). The Universities of Toronto and Montréal have very few students from outside the provinces in which they are located. Dalhousie, Manitoba and Alberta have one-third or more students from beyond their provinces while 32 per cent of McGill's students come from outside Canada (Table 18).

It was noted above that the capacity of the dental schools enables them to graduate one dental hygienist for every 3.4 dentists. Some provinces have much higher ratios of hygienists-in-training to dental students than others. For instance,

Manitoba en seconde place parmi les provinces quant au nombre des étudiants en rapport avec la population.

De tous les étudiants des facultés dentaires, 88 (7.5 pour cent) viennent de pays étrangers. Le plus grand nombre (39) viennent des Etats-Unis; ensuite suivent les Indes occidentales (19) et la Grande Bretagne (10). Les universités de Toronto et de Montréal ont peu d'étudiants venant de l'extérieur de la province où elles sont situées. Dalhousie, Manitoba et Alberta ont un tiers ou plus de leurs étudiants qui viennent de l'extérieur de la province, tandis que 32 pour cent des étudiants de McGill viennent d'en dehors du Canada (Tableau 18).

On mentionnait plus haut que les facultés peuvent former une hygiéniste dentaire pour chacun des 3.4 dentistes qui terminent leurs études. Quelques provinces ont une proportion plus élevée dans ce domaine. Par exemple, il y a 20 étudiantes venant de l'Ile-du-Prince-Edouard, de Nouvelle-Ecosse et du Nouveau-Brunswick dans les deux années du cours d'hygiène dentaire et il y a 46 étudiants dans les quatre années du cours de chirurgie dentaire.

Les provinces d'Ontario, de Saskatchewan et d'Alberta ont des proportions plutôt élevées d'étudiantes en hygiène dentaire en comparaison des étudiants en

TABLE 17 Canadian dental students per 100,000 population, by province, 1959-1963 • Nombre des étudiants dentaires de nationalité canadienne par 100,000 de population, par province, 1959-1963.

Province	1959-60	1960-61	1961-62	1962-63	1963-64
Newfoundland Terre-Neuve	2.0	1.7	1.7	3.0	3.5
Prince Edward Island Ile-du-Prince-Edouard	1.0		1.9	3.8	3.7
Nova Scotia Nouvelle-Ecosse	2.7	2.4	2.7	3.1	3.6
New Brunswick Nouveau-Brunswick	3.6	2.8	2.3	1.8	2.4
Québec	4.3	3.9	4.3	4.5	4.7
Ontario	6.0	5.9	6.7	7.3	7.3
Manitoba	5.3	6.1	8.7	7.9	7.6
Saskatchewan	5.3	5.5	5.2	6.6	6.9
Alberta	5.6	5.4	6.7	7.7	9.3
British Columbia Colombie britannique	3.9	3.9	4.3	4.2	3.6
Canada	4.9	4.7	5.4	5.8	5.9

TABLE 18 Residential distribution of students from outside the province in which the dental school is located, 1963-1964 • Endroits de résidence des étudiants venant d'ailleurs que de la province où la faculté dentaire est située, 1963-1964.

Residence	All dental schools Toutes les facultés	Dental schools — Faculté						Résidence
		Dalhousie	McGill	Montréal	Toronto	Manitoba	Alberta	
Other provinces of Canada	175	41	20	8	10	34	62	Autres provinces du Canada
Other countries:	88	9	46	3	23	4	3	Autres pays:
Australia	6				6			Australie
Bermuda	2	1	1					Bermudes
Ghana	1						1	Ghana
Great Britain	10	1	2		7			Grande Bretagne
Hong Kong	5	1	2			1	1	Hong Kong
India	1		1					Indes
Middle East	3		1		1	1		Moyen Orient
South America	2		2					Amérique du Sud
United States	39	6	25	2	5		1	Etats-Unis
West Indies	19		12	1	4	2		Indes occidentales
Total	263	50	66	11	33	38	65	Total
	Percentage of all dental students—Pourcentage de tous ces étudiants dentaires							
Other provinces of Canada	14.9	54.7	14.0	4.3	2.1	33.0	32.5	Autres provinces du Canada
Other countries	7.5	12.0	32.2	1.6	4.8	3.9	1.6	Autres pays
Both	22.4	66.7	46.2	5.9	6.9	36.9	34.1	Les deux

TABLE 19 Residential distribution of dental hygiene students in Canadian dental schools, 1963-1964 • Endroits de résidence des hygiénistes dentaires dans les facultés dentaires canadiennes, 1963-1964.

Residence	Ratio, hygienists/dental students Proportion, hygiénistes/étudiants dentaires	Total	Dental school — Faculté			
			Dalhousie	Toronto	Manitoba	Alberta
Newfoundland Terre-Neuve	1:17	1	1			
Prince Edward Island Ile-du-Prince-Edouard	1:2	2	2			
Nova Scotia Nouvelle-Ecosse	1:2	14	14			
New Brunswick Nouveau-Brunswick	1:4	4	4			
Québec	0:257	0				
Ontario	1:5	95	4	91		
Manitoba	1:12	6			6	
Saskatchewan	1:6	11			6	5
Alberta	1:4	32				32
British Columbia Colombie britannique	1:61	1		1		
Canada	1:7	166	25	92	12	37

TABLE 20 Dates of application, admission and graduation, Canadian dental schools, 1963-1964 and 1964-1965 • Dates pour demande, admission et graduation aux facultés dentaires canadiennes, 1963-1964 et 1964-1965.

Dental school Faculté	Freshman application 1964 Demande 1 ière année	Term — Année			
		1963-1964		1964-1965	
		Admission	Graduation	Admission	Graduation
Dalhousie	May 30 mai	Sept. 4 sept.	May 14 mai	Sept. 8 sept.	May 13 mai
McGill	Mar. 1 mars	Sept. 4 sept.	May 29 mai	Sept. 9 sept.	May 30 mai
Montréal	July 15 juillet	Sept. 4 sept.	May 31 mai	Sept. 2 sept.	May 27 mai
Toronto	Mar. 1 mars	Sept. 25 sept.	May 29 mai	NA*I	NA*I
Manitoba	Apr. 30 avril	Sept. 9 sept.	May 21 mai	Sept. 18 sept.	NA*I
Alberta	May 15 mai	Sept. 9 sept.	June 3 juin	NA*I	June 3 juin

*Not available — Inconnu.

TABLE 21 Financial aid available to undergraduates and graduates at Canadian dental schools, excluding government funds • Sources d'aide financière disponibles aux étudiants sous-gradués et gradués dans les facultés dentaires canadiennes (fonds du gouvernement non-compris).

Dental school Faculté	Undergraduates — Sous-gradués		Graduates—Scholarships and/or fellowships Gradués—Bourses et/ou participation à l'enseignement
	Scholarships Bourses	Loans Prêts	
Dalhousie	yes — oui	yes — oui	
McGill	yes — oui	yes — oui	
Montréal	no — non	yes — oui	yes — oui
Toronto	yes — oui	yes — oui	no — non
Manitoba	yes — oui	yes — oui	yes — oui
Alberta	yes — oui	yes — oui	yes — oui

TABLE 22 Estimated cost of dental education at Canadian dental schools • Estimés du coût des études dentaires dans les facultés canadiennes.

Item	Average cost Coût moyen	Dental school — Faculté						Item
		Dalhousie	McGill	Montréal	Toronto	Manitoba	Alberta	
	$	$	$	$	$	$	$	
Predental								Prédentaire
Tuition		930	1,116	500	410	325	350	Frais de scolarité
Textbooks		120	100	30	50	50	135	Volumes
Supplies						50		Matériel
Incidentals				15	60	100		Divers
Sub-total university expenses		1,050	1,216	545	520	525	485	Total des dépenses d'université
Room and board		1,276	1,500	1,200	600	420	640	Chambre et pension
Total*		2,326	2,716	1,745†	1,120	945	1,125	Total*
Dental								Dentaire
Tuition	2,177	2,342	2,320	2,200	2,400	1,800	2,000	Frais de scolarité
Instruments	1,475	1,480	1,800	700	644	1,300	1,637	Instruments
Supplies	‡	75	217	600	‡	400	‡	Matériel
Textbooks	276	255	200	200	300	350	350	Volumes
Incidentals	194	100	100	100	240	400	225	Divers
Sub-total university expenses	4,122	4,252	4,637	3,800	3,584	4,250	4,212	Total des dépenses d'université
Room and board	3,170	3,352	3,305	5,000	2,400	2,400	2,560	Chambre et pension
Total	7,292	7,604	7,942	8,800	5,984	6,650	6,772	Total
Grand total		9,930	10,658	10,545	7,104	7,595	7,897	Coût global

*There is a wide variation in predental education costs because in some provinces it is possible to obtain one year of university credit at the high school level.
Le coût de l'enseignement prédentaire est sujet à de grandes variations dues au fait que dans certaines provinces il est possible d'obtenir des crédits pour une année universitaire dans les collèges.

†Included with instruments.
Avec instruments inclus.

‡A predental year at a faculty of arts and sciences is compulsory for admission to the Faculty of Dental Surgery, Université de Montréal, only for those applicants who, through the B.A. program of the classical colleges of the Province of Quebec, would not meet the admission requirements in scientific subjects.
Une année prédentaire est imposée seulement aux candidats qui, dans leur programme de baccalauréat ès arts, n'ont pu inclure les cours dans les matières scientifiques de façon à satisfaire aux exigences d'admission à la Faculté de chirurgie dentaire de l'Université de Montréal.

there are 20 students from Prince Edward Island, Nova Scotia and New Brunswick in the two year dental hygiene course and 46 students in the four year dental course. Ontario, Saskatchewan and Alberta also have high ratios of hygienists-in-training to dental students — 1:5, 1:6 and 1:4 respectively (Table 19).

Dates of Terms.—All schools have terms beginning in September (from the 4th to the 25th) and all but one school sets its graduation date in May. Alberta's dentists graduate on June 3. Freshman applications are submitted between March 1 (Toronto and McGill) and July 15 (Montréal) (Table 20).

Scholarships and Loans. — Students of all schools have loan funds from other than government sources available to them. All schools except Montréal make available scholarships to undergraduates. Montréal, Manitoba and Alberta have scholarships or fellowships available to graduates as well (Table 21).

Dental Internship. — Information on the number of graduates going into dental internships was available from only three schools. From the three reporting, six graduates went into general internship, three into surgery and one into paedodontics.

Cost of Education. — The average cost of dental education has increased again this year. The average cost of university expenses during the four dental years is $4,122; the average cost of room and board is $3,170, making a total of $7,292. Total expenses for predental plus dental education vary greatly from $7,100 to $10,700. The variation is particularly wide in predental education costs because in some provinces students can obtain one year of university credit at high school. The wide spread in the overall cost of dental education is largely due to differences in the costs of living for students at different schools.

chirurgie dentaire — 1:5, 1:6 et 1:4 respectivement (Tableau 19).

Durée de l'année scolaire.—Dans toutes les facultés, les cours commencent en septembre (du 4 au 25) et, sauf une, les autres décernent leurs diplômes en mai. Les étudiants d'Alberta reçoivent leur diplôme de dentiste, le 3 juin. Les demandes d'admission se font entre le 1er mars (Toronto et McGill) et le 15 juillet (Montréal) (Tableau 20).

Bourses et prêts. — Toutes les facultés mettent à la disposition des étudiants des prêts qui viennent de sources autres que celle du gouvernement. Toutes les facultés, excepté Montréal, accordent des bourses d'études aux étudiants. Montréal, Manitoba et Alberta ont des bourses d'études pour les étudiants qui poursuivent des études graduées (Tableau 21).

Internats dentaires. — Seulement trois facultés ont fourni des renseignements au sujet du nombre de leurs diplômés qui s'engagent dans des internats dentaires. Les trois facultés qui ont donné ces renseignements déclarent que six de leurs diplômés se sont inscrits dans des internats généraux, trois en chirurgie et un en pédodontie.

Frais de scolarité.—La moyenne des frais de scolarité a encore augmenté, cette année. La moyenne des dépenses qui doivent être faites à l'université durant les quatre années du cours se chiffre à $4,122; la moyenne du coût des chambres et de la pension s'établit à $3,170, formant un total de $7,292. Le coût total des dépenses nécessaires pour le cours prédentaire et le cours des études dentaires proprement dites se chiffre de $7,000 à $10,000. Cette variation est surtout due au cours prédentaire parce que, dans certaines provinces, les étudiants peuvent obtenir une année de crédit durant leur stage au collège. La différence qui existe dans le coût total de l'enseignement dentaire vient des différences qui existent dans le coût de la vie pour les étudiants dans les diverses écoles.

editorials

Cytodetection of oral cancer: a life-saving role for the dentist

Incidence studies in Canada reveal that five to six per cent of all cancer occurs in the mouth and the lips. Nearly 4,000 new cases of oral cancer occur in this country each year. More than half of these — approximately 2,500 — affect the lips. The remainder occur within the oral cavity, predominantly on the floor of the mouth, tongue, soft palate and oropharynx.

Cancer of the mouth should be among the easiest to detect. Here the lesions are more readily accessible to examination than, for example, in the uterus, colon or prostate gland. Yet the cure rate following treatment of malignant oral lesions is most disappointing. The main reason for this is the fact that oral cancer is not being detected soon enough. Earlier diagnosis of cancer of the mouth is an urgent necessity if more lives are to be saved and more patients spared the mutilations and disfigurement associated with delayed treatment.

Clinical examination and biopsy are the traditional methods for detecting mouth cancer. But it appears that few dentists use the biopsy services that are available. There is a widespread reticence to removal of biopsy sections from the floor of the mouth, tongue, soft palate and oropharynx when the lesions are asymptomatic in behaviour, small and innocent in appearance. Yet this is precisely the stage where proper diagnosis can literally spell the difference between life and death. To delay until the lesions exhibit chronicity, attachment, a raised indurated margin surrounding an eroded or ulcerated base, and enlargement of regional lymph nodes is much too late. Such tardiness may well have fatal consequences.

Fortunately, the advent in dentistry of the cytological smear technique provides us with another accurate and valuable aid for the early detection of oral cancer. This technique is based on the identification of abnormal cytological characteristics in cells removed from a malignant lesion. Used for some time past in the detection of cancer elsewhere in the body—notably the uterus — the cytological smear technique now promises to have its simplest, most fruitful and least expensive application in the early detection of cancer of the mouth.

Two important features are to be noted. First, the smear technique does not supplant the use of biopsy procedures. All smears exhibiting suspicious or malignant characteristics are supplemented by biopsy. Secondly, in the mouth, the smear technique is not applied as a mass screening process. Smears are only made where abnormalities of the mucosa have been detected by direct vision.

The tremendous value of oral cytology is particularly well illustrated in an article by Sandler which appears in this issue of the Journal. Widespread application of cytodetection in clinical practice would undoubtedly encourage life-saving investigation of many mouth lesions that are now being disregarded as benign. Prompt im-

plementation hinges on (1) familiarizing every practitioner with the technique and with its application, and (2) establishing appropriate facilities for the distribution and collection of cytodiagnostic kits and for interpretation of submitted cytosmears. This necessitates organized action at each provincial level, with co-operative effort on the part of corporate members of the Canadian Dental Association, provincial health departments and provincial cancer societies. In some provinces action has already been taken to achieve these objectives. It is a matter of the highest public interest that similar action be initiated without delay in the remainder of the provinces.

National convention with a western flair

There is still time to make reservations to attend the national convention of the Canadian Dental Association in Edmonton from June 28 to July 1.

The Alberta Dental Association is the host organization. W. R. Stuart is convention chairman and Edmonton's Macdonald Hotel will serve as convention centre.

A comprehensive scientific program embracing panel discussions, essays, closed circuit television demonstrations, table clinics, scientific motion pictures and scientific and commercial exhibits will present the latest information on all aspects of dentistry.

Headlining the scientific program will be Harold Hillenbrand of Chicago, secretary of the American Dental Association; R. W. Phillips of Indiana University School of Dentistry; and Terence Ward of London, England, prominent oral surgeon and co-founder of the International Association of Oral Surgeons.

"Broader diagnostic horizons through panographic radiography" is the theme of the George Wellington Grieve Memorial Lecture to be delivered by T. M. Graber of Northwestern University, Chicago.

The 1964 Canadian Dental Association feature panel presentation will be devoted to recommendations of the Royal Commission on Health Services and their effect on dental practice.

Four specialty sections of the Canadian Dental Association will also meet in the Macdonald Hotel during the convention. The Canadian Society of Dentistry for Children will be addressed on June 28 by I. Kleinberg. The Canadian Academy of Periodontology will meet the same day. The Canadian Society of Oral Surgeons and the Canadian Society of Orthodontists will hold two-day sessions on June 29 and 30.

Dental hygienists and dental assistants have also planned programs and look forward to meeting their colleagues from other parts of Canada.

Apart from the scientific sessions, many interesting social events have been arranged. A Sunday evening musicale on June 28 will start off the convention. A barbecue, featuring buffalo steaks, is scheduled for the evening of Monday, June 29, and on Tuesday, June 30, there will be a visit to the Alberta Game Farm. The highlight of the social program will be the President's Banquet and Ball on Wednesday, July 1, which concludes the convention activities.

For those fortunate enough to be able to linger a while, Alberta has much to offer. The famous Calgary Stampede takes place July 6 to 11 and Edmonton's Klondike Days will be held July 13 to 18. Jasper and Banff National Parks should be visited for they are unexcelled for beauty, fishing, boating and golfing.

To "combine business with pleasure" nothing could be more satisfying than a trip to Edmonton for this year's national convention of the Canadian Dental Association.

Destination Edmonton for the national convention

Hundreds of dentists and their families from all parts of Canada are expected to attend the forthcoming national convention of the Canadian Dental Association (June 28 to July 1) in Edmonton. Scientific and business sessions are scheduled at the Macdonald Hotel, with dental educators, scientists and practitioners from Britain, the United States and Canada participating. Of major interest will be the 1964 Canadian Dental Association feature panel presentation devoted to recommendations of the Royal Commission on Health Services. Other highlights are the George Wellington Grieve Memorial Lecture and a presentation on contemporary and future dentistry by Harold Hillenbrand, secretary of the American Dental Association. A diversified social program for convention delegates, their wives and their families, and an opportunity to visit Alberta's beautiful mountain resorts or thrill to the Calgary Stampede, round out an event of unusual interest.

SOCIOLOGIST AND DENTIST WILL DISCUSS ROYAL COMMISSION REPORT

B. A. McFarlane, assistant professor of sociology at Carleton University, Ottawa, and W. G. McIntosh, secretary-designate of the Canadian Dental Association, will be the principal speakers at this year's Canadian Dental Association feature panel presentation during the Edmonton national convention. The subject for discussion will be the recommendations of the Royal Commission on Health Services. Release of the Commission's report is anticipated prior to the national convention.

Dr. McFarlane has served as a consultant to the Royal Commission. His study on dental manpower in Canada, undertaken for the Commission, is expected to be published shortly.

Dr. McIntosh, a past president of the Association, is currently chairman of the Dental Services Committee. He was intimately associated with preparation of the Association's brief to the Royal Commission.

Association president James Zimmerman of Calgary will act as chairman for the panel. A question and answer period will follow the presentations by the two speakers. All members of the Association are strongly urged to attend this highly important panel discussion.

CHILDREN'S DENTISTRY PROMINENT AT NATIONAL CONVENTION

Different aspects of children's dentistry will be prominently featured throughout the forthcoming Canadian Dental Association national convention.

The Alberta Chapter of the Canadian Society of Dentistry for Children starts the program on Sunday morning, June 28, at 9.00 a.m. with two lectures on the role of the dental plaque in caries and calculus formation. These will be delivered by I. Kleinberg of the oral biology department, University of Manitoba. Table clinics, a panel discussion and a luncheon complete the Sunday program. Alberta Chapter C.S.D.C. members may attend on Sunday at no further cost. A small fee will be charged non-members who plan to attend.

On Monday, June 29, a portion of R. W. Phillips' essay on dental materials will be devoted to restorative dentistry for children. Dr. Phillips is chairman of the Department of Dental Materials at Indiana University Dental School.

The George Wellington Grieve Memorial Lecture by T. M. Graber on Tuesday, June

30, is devoted to panoramic radiography. Dr. Graber comes to us from the orthodontic department at Northwestern University in Chicago.

On Wednesday, July 1, Walter Zacherl of Edmonton reports on a two-year experimental study with a stannous fluoride-calcium pyrophosphate dentifrice. Dr. Zacherl is research associate at the University of Alberta's dental faculty.

Look to these important paedodontic events in Edmonton:

Sunday, June 28: C.S.D.C. meeting featuring I. Kleinberg, essayist, on dental plaque in caries and calculus formation;

Monday, June 29: R. W. Phillips, essayist, discussing some aspects of restorative dentistry for children;

Tuesday, June 30: T. M. Graber, Grieve Memorial lecturer, discussing panoramic radiography; and

Wednesday, July 1: Walter Zacherl, essayist, on results of a two-year study with a stannous fluoride - calcium pyrophosphate dentifrice.

RESEARCH IN DENTAL SCHOOLS, A NATIONAL CONVENTION FEATURE

A portion of the program of the C.D.A. national convention at Edmonton, June 28 to July 1, will be devoted to reports of the research activity in five Canadian dental schools. This new departure for the national meeting has a twofold purpose: to inform the practitioner and the public about current research in Canadian dental schools, and to accelerate the application of research findings to clinical practice. Reports to be given by representatives of the Faculties of Dentistry of the Universities of Montreal, Toronto. Manitoba, British Columbia, and Alberta will be presented on the first and second days of the scientific program (June 29 and 30).

NUMEROUS CLASS REUNIONS SLATED DURING NATIONAL CONVENTION

The national convention provides dentists with an opportunity to renew old acquaintances. Many class reunions are scheduled during the convention at Edmonton, June 28 to July 1. Groups that plan meetings and officers in charge of arrangements are:

1941 (Alberta) C. D. Duke, Col. Mewburn Pavilion, University of Alberta, Edmonton, Alberta;

1944 (Toronto) C. R. Castaldi, Faculty of Dentistry, University of Alberta, Edmonton, Alberta;

1949 (Alberta) R. C. Sills, 9416-91 Street, Edmonton, Alberta;

1950 (Alberta) L. Hague, 9632-142 Street, Edmonton, Alberta;

1951 (Alberta) C. Gullekson, 215 Birks Building, Edmonton, Alberta;

1952 (Alberta) A. C. Thompson, 11662-95 Street, Edmonton, Alberta;

1953 (Alberta) R. P. Mullen, 531 Tegler Building, Edmonton, Alberta;

1960 (Alberta) A. Retzlaff, 10612-124 Street, Edmonton, Alberta.

The University of Alberta Dental Alumni Association will give a cocktail party in the Macdonald Hotel on Tuesday, June 30, from 6.30 to 7.30 p.m.

RAILWAY CONVENTION RATE UNAVAILABLE

The Canadian Passenger Association has announced that reduced train fare rates on the identification certificate plan will not be available for the C.D.A. national convention in Edmonton. With the inauguration of both transcontinental railways' drastic rate reductions to the general public, convention fares have been discontinued.

IMPORTANT DECISIONS MARK FEBRUARY EXECUTIVE COUNCIL MEETING

A heavy agenda kept council members fully occupied for four days when the Executive Council held its annual mid-year meeting at Toronto, February 17-20. A decision of major importance was the appointment of W. G. McIntosh of Toronto as secretary-designate of the Canadian Dental Association. Dr. McIntosh succeeds Don W. Gullett upon the latter's retirement later this year.

From W. R. Stuart of Edmonton the council heard a progress report on plans for the 1964 national convention. Tentative proposals for the 1967 convention were outlined by E. A. White of Toronto. The council also set dates for national conventions in Halifax (1966), Toronto (1967) and Vancouver (1968).

The council adopted a report of its Advisory Insurance Committee (reported elsewhere in this issue), gave complete support to Canadian Dental Association Pension and Insurance Plans, and expressed confidence in the plan administering agency (Professional and Industrial Pensions Ltd.).

In other actions the council:

Approved the cytological smear technique for diagnosis of oral cancer;

"Took possession" of the new headquarters wing from the Headquarters Property Committee;

Commissioned Dr. Gullett to write a proposed history of dentistry in Canada;

Commissioned a portrait in oils of Dr. Gullett for presentation to Dr. Gullett at the 1964 national convention;

Received a progress report from a subcommittee on administrative and income status of public health dentists;

Allocated a grant of $5,000 to the Canadian Fund for Dental Education;

Learned that the Canadian Council on Hospital Accreditation cannot take immediate action on the Association's application for a seat on council;

Authorized a steering committee to proceed with preparation of the Association's brief to the Senate of Canada Committee on Aging;

Approved dental assistants' and dental hygienists' conferences for the fall of 1964;

Authorized continuing support by the Association of Canadian Education Week;

Approved Association participation in the 1967 World's Fair in Montreal; and

Adopted a budget for 1965 to be presented at the forthcoming annual meeting of the Board of Governors.

Council also gave lengthy consideration to difficulties in the remuneration of dentists for dental services insured by physician-sponsored service plans and concluded that while an accommodation would be highly desirable, this would have to be sought by negotiation at the provincial level.

NATIONAL GROUP LIFE INSURANCE PLAN ADVOCATED FOR DENTISTS

Early establishment of a national group life insurance plan for Canadian dentists was one of the recommendations made by a special advisory committee on commercial insurance which met at Association Headquarters, February 13-14. The proposed group life plan would supplement existing pension-assurance, retirement savings, sickness and accident, hospital-medical-surgical-extended health benefit, and office overhead plans available to dentists under Canadian Dental Association Pension and Insurance Plans.

The meeting resulted from recent Executive Council action establishing the special advisory committee. P. G. Anderson and R. P. Lowery of Toronto, two trustees appointed by the Canadian Dental Association, had previously acted on behalf of the Association in relation to pension and insurance plans since the inception of the Association's program in 1952. An expressed desire to supplement the supervisory service rendered by the two trustees resulted in the creation of the new, geographically representative, special advisory committee. The committee is charged with "(1) investigating insurance programs sponsored by the dental profession; (2) making recommendations respecting the merits of policy contracts offered to the profession; (3) recommending the means of operation of insurance programs in a manner most advantageous to the profession; and (4) where advisable, obtaining advice on all related matters."

After very careful review of the institution and operation of existing Canadian Dental Association Pension and Insurance Plans, the committee described these plans as "very beneficial to members of the profession."

In other actions the advisory committee:

Emphasized that insurance plans on a national scale give best results;

Commended the trustees for their past services and urged that they become ex-officio members of the advisory committee;

Advocated greater promotion of the Association's various insurance plans;

Urged dental organizations to communicate with the Association before instituting any separate group insurance plans;

Recognized the need for a qualified insurance administrator to administer the Association's insurance plans; and

Recommended that Professional and Industrial Pensions Limited (the Plan's administrator) ". . . continue in its present overall relationship to the Canadian Dental Association for the time being . . ."

Attending the meeting were George Zimmerman of Montreal; D. C. Steeves of Moncton; D. C. Way of London; O. F. Wright of Vancouver; D. C. McKechnie of Edmonton; J. T. Staddon of Professional and Industrial Pensions Limited, Toronto; and M. V. J. Keenan of Sudbury, pro tempore committee chairman.

TO PRODUCE CANADIAN DENTAL HISTORY

The Executive Council of the Canadian Dental Association has appointed Don W. Gullett to compile all necessary material and write a history of Canadian dentistry. This action follows instruction of the Board of Governors at its last annual meeting that immediate action be taken to start production of such a history. It is anticipated that a considerable amount of time will be re-

quired to search out and collect the historical material in preparation for writing. Dr. Gullett retires later this year as C.D.A. secretary.

APTITUDE TESTS, ASSISTANTS AND HYGIENISTS TRAINING PROGRAMS DISCUSSED BY COUNCIL ON EDUCATION

An advanced method of testing the aptitude of applicants to dental schools was recently described to the Council on Education by R. M. Grainger and J. Flowers of the University of Toronto. The method, which is based on extensive investigations, registers academic, technical and deportment (personality) ratings for each person tested. The tests facilitate the selection of applicants for undergraduate and graduate courses and permit better evaluation of personal difficulties encountered by students who do not perform as predicted. The council will study how the Grainger-Flowers aptitude testing program can be applied nationally to all Canadian dental schools.

Also at its meeting in Toronto, February 6-7, the council received reports on student enrolment in Canadian dental schools, National Dental Examining Board procedures, student recruitment, survey and approval of dental schools and schools of dental hygiene, activities of the Royal Commission on Health Services, summer employment for dental students, training programs for dental hygienists and dental assistants, cytodetection for oral cancer, and activities of the Canadian Fund for Dental Education.

In further actions the council:

Decided to review and recommend future plans concerning the council's survey program of Canadian dental schools;

Approved American schools of dental hygiene accredited by the Council on Dental Education of the American Dental Association;

Recommended Association sponsorship for a conference of directors of Canadian dental hygiene schools and for a conference of directors of dental assistants' training programs in Toronto, Edmonton and Vancouver to establish liaison with respect to curricula and other matters of mutual concern; and

Designated Jean Nadeau of the Université de Montréal as chairman of a conference of teachers of prosthodontics to precede the 1965 meeting of the council.

The council meeting, held in the new boardroom at Association headquarters, was preceded by a conference of paedodontic teachers from all six Canadian dental schools, February 4-5, under the chairmanship of W. H. Feasby of the University of Manitoba.

Attending council members included James McCutcheon, dean of the Faculty of Dentistry, McGill University, Montreal; T. J. Cooke of Winnipeg; C. E. Dexter of Halifax; J. W. Neilson, dean of the Faculty of Dentistry, University of Manitoba, Winnipeg; O. J. Yule of Toronto; A. C. Lewis of Toronto, council adviser; and J.-P. Lussier, dean of the Faculty of Dental Surgery, Université de Montréal, and council chairman.

Also in attendance for parts of the meeting were W. J. Dunn of Toronto, chairman of the National Recruitment Committee; W. H. Feasby of Winnipeg, chairman of the 1964 paedodontic teaching conference; K. J. Paynter of Toronto, chairman of the Council on Research; C. H. M. Williams of Toronto, C.D.A. representative to the National Cancer Institute of Canada; and J. M. Coady and T. J. Ginley, two observers from the Council on Dental Education of the American Dental Association.

Others who attended were E. A. Ambrose of Montreal; H. K. Brown and R. A. Connor of Ottawa; H. N. Beach of Ottawa, secretary of the National Dental Examining Board of Canada; R. G. Ellis, dean of the Faculty of Dentistry, University of Toronto; H. R. MacLean, dean of the Faculty of Dentistry, University of Alberta; J. D. McLean, dean of the Faculty of Dentistry, Dalhousie University; and S. Wah Leung, dean of the Faculty of Dentistry, University of British Columbia.

ORAL CYTOLOGY FILM AVAILABLE

H. C. Sandler's film describing the oral cytology smear technique is available on loan from the library of the Canadian Dental Association. The film was used effectively at the conference of provincial dental secretaries and dental school representatives in December. It is in sound and colour and is seventeen minutes long. The film is recommended for dental society meetings.

C.D.A. MEETS PRESS

Officials of the Canadian Dental Association recently met informally for dinner with some senior representatives of the news media. After dinner an open and informal question period, mostly concerning fluoridation, developed. The meeting took place while members of the Executive Council were in Toronto to attend their regular annual meeting. Editorial and science writers from Toronto newspapers and the Canadian Broadcasting Corporation attended.

International Items

KELSEY FRY, BRITISH ORAL SURGEON DIES

The British dental profession has suffered a grievous loss in the death of Sir William Kelsey Fry at the age of 74. Sir William had an international reputation as an oral surgeon and his name will always be associated with the Queen Victoria Hospital, East Grinstead, Surrey, renowned for the treatment of trauma involving the jaws.

ALPHA OMEGA FRATERNITY MEETS IN MIAMI BEACH

Two Canadians were honoured at the 56th annual convention of the Alpha Omega Fraternity in Miami Beach last December. James Zimmerman of Calgary, president of the Canadian Dental Association, was made an honorary member. J. A. Sherman of Toronto received the Distinguished Service Award. Other Canadians attending were Herbert Caplan of Montreal and F. G. Stulberg of Toronto.

M. C. Goldstein of Atlanta, Georgia, was elected president for 1964. Named with Dr. Goldstein were John Samuels of Cleveland, Ohio, president-elect; Albert Weiser of Philadelphia, Pennsylvania, secretary; Herbert Caplan of Montreal, treasurer; and A. K. Koran of Beverly Hills, California, editor. F. G. Stulberg of Toronto was elected marshall for the 1964 convention which will be held in Toronto.

POSTGRADUATE COURSES OFFERED IN NEW YORK

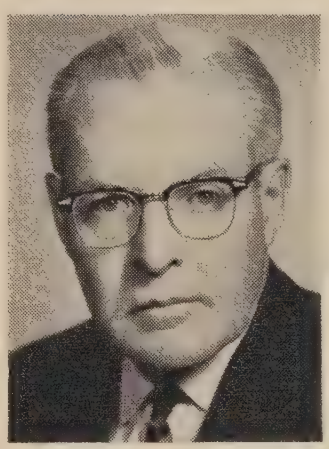
The First District Dental Society offers a variety of short postgraduate refresher courses during the spring months. Further information concerning these courses may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York 1, New York, 10001, U.S.A.

AMERICAN ACADEMY OF DENTAL MEDICINE TO MEET IN NEW YORK

The 18th Annual Meeting of the American Academy of Dental Medicine will be held in New York, May 29-31. The theme of the meeting will be "Nutrition in health and disease." Further information may be obtained from Sidney Conrad, 133-28 228th Street, Laurelton, New York, U.S.A.

Dental Organizations

CHAMARD IS PRESIDENT OF MONTREAL DENTAL CLUB



J. M. Chamard

J. M. Chamard was elected president of the Montreal Dental Club on January 27. Dr. Chamard succeeds A. W. Oliver. New officers elected with Dr. Chamard for the coming year were: D. B. Ward, president-elect; L. A. Gill, secretary; A. C. Casey, treasurer; and A. R. Ramsey, historian-archivist. Committee members who will complete their second year in office are J. F. McMullan, E. P. Millar and J. H. A. Senecal. Beginning a two-year term as committee members are J. E. Kehoe, V. B. Griffiths and M. A. Reutsky.

Two resolutions were adopted at the Club's sixty-sixth annual meeting. One dealt with the pro-ration principle applied to fee schedules and recommended that "resolutions formulated by the (C.D.A.) Dental Services Committee to be submitted to the Board of Governors or other group related directly or indirectly to dentistry be submitted in full to all dentists in Canada and that such resolutions be adopted as official policy on the basis of a vote or referendum of all dentists." The other resolution criticized Canadian Dental Association philosophy engendered by repeated reappointment of current committee members and recommended that re-election of committee members be altered so that members may be re-elected only once, thereafter retiring for one electoral period before becoming eligible for further re-election. This resolution also states that a Canadian Dental Association member should not hold office on more than two committees.

Welcomed as new members were R. Nicholson, B. V. Villeneuve and C. Wirth.

SOLOMON HEADS QUEBEC ORTHODONTISTS

Members of the Province of Quebec Association of Orthodontists met recently to hear J. P. Couture of Verdun discuss the significance of the width of the lower incisor teeth in orthodontic treatment planning.

The occasion was also the annual meeting of the association and officers elected were C. M. Solomon, president; J. J. Bisaillon, vice-president; and R. W. Faith, secretary-treasurer. All are from Montreal.

DOWHOS HEADS LAKEHEAD DENTISTS

W. W. Dowhos of Port Arthur has been named president of the Thunder Bay Dental Association for 1964. Elected to the executive with Dr. Dowhos were B. F. Turner of Fort William, vice-president; R. A. Laine of Port Arthur, secretary; and J. K. Hicks of Fort William, treasurer. A. E. Ward of Fort William is immediate past president.

GERALD STIBBS GUEST CLINICIAN AT WINNIPEG

The Winnipeg Dental Society held a popular clinic on February 6 featuring Gerald Stibbs as guest clinician. Dr. Stibbs is head of the Department of Operative Dentistry at the University of Washington School of Dentistry, St. Louis. "Amalgams, cavity preparations and cast restorations" was the topic of Dr. Stibb's lecture which was well illustrated with colour slides demonstrating why amalgam fillings can fail, and also why correct contouring is so essential in maintaining proper function and health of periodontal tissues.

A combined business meeting and luncheon was held on the same day, with considerable discussion of group insurance in the health field.

A. D. McKEE HEADS MANITOBA DENTISTS

Manitoba dentists opened their 1964 program with a three-day mid-winter meeting held in the Royal Alexandra Hotel, Winnipeg, January 19-22. About 150 dentists in attendance heard two eminent clinicians.

Carl Sebelius of Chicago lectured on international and public health aspects of dentistry. Dr. Sebelius, who is secretary of the American Dental Association's Councils on Dental Health and International Relations, was chief dental officer of the World Health Organization in Geneva from 1956 until 1958.

Ernest Nuttall of the Department of Fixed Prosthodontics at the University of Maryland School of Dentistry, Baltimore, presented two lectures on restorative dental service and current concepts in fixed prosthodontics.

A. D. McKee of Dauphin, Manitoba, was installed as president of the Manitoba Dental Association. He succeeds H. A. Allen of Winnipeg.

Life memberships were conferred on J. G. Elsey, K. M. Johnson and H. W. Tweed of Winnipeg.

Considerable time was devoted to proposed new legislation regarding the Dental Technicians Act, which will be presented at the current session of the Manitoba legislature.

A. D. FEE ADDRESSES EDMONTON DENTISTS

"Balanced occlusion in prosthetic dentistry" was the subject of A. D. Fee's address to the members of the Edmonton and District Dental Society on February 4. Dr. Fee is professor and head of the Department of Prosthodontics at the Faculty of Dentistry, University of Alberta.

DENTAL OFFICE TO BE RESTORED AT FORT STEELE, B.C.

The British Columbia government is restoring another ghost town, historic Fort Steele near Cranbrook. Under the auspices of the B. C. Dental Association, an old-time dental office is being equipped. Already donated are an antique dental cabinet and a chair with red plush seat that belonged to a dentist who retired after practising for nearly 60 years. Other items of equipment are solicited from Canadian dentists for the Fort Steele project. Supervising the restoration is L. K. Grady, 107 East Hastings Street, Vancouver.

VANCOUVER MIDWINTER CLINIC A SUCCESS

Over two hundred dentists were present at the annual Vancouver Midwinter Clinic on February 1. Formerly called "Home Talent Day," this event has been increasing in popularity year by year.

The morning session began with two chairside demonstrations by E. V. Gowda on

class II gold inlay preparation and impression, and J. E. G. Harrison on endodontic procedure for anterior teeth. The B. C. Society of Orthodontists presented a symposium on orthodontic problems with A. A. Fraser as chairman and C. E. Craig, J. G. Ryan and K. M. Walley taking part.

Chairside demonstrations in the afternoon were given by paedodontist G. M. Jinks and Miss M. Kaufmann, instructor for dental assistants.

A symposium on estate planning, conducted by A. J. S. Prothero, offered expert information on accounting, law, insurance and investments.

Eleven table clinics were presented during the day.

At the luncheon meeting five new life members were elected: O. R. Hougen, R. D. Shortreed, R. W. Hall, R. Jamieson and R. B. Archibald. They have been members of the society for at least 20 years and have been in practice for 45 years. In charge of the midwinter clinic were F. A. Mitchell and J. A. Woyat.

Canadian Dental Schools

VARSITY FUND GRANT FOR STRONTIUM RESEARCH

A grant of $6,000 has been allocated from the University of Toronto Alumni Varsity Fund to assist in research on the measurement of strontium^{90} in teeth of Canadian children. The project is directed by A. M. Hunt of the Faculty of Dentistry. This grant permits acquisition of a new "low background counter" which is urgently needed because of the increased number of samples being processed and the necessity for long sample counting times. "Data obtained from this study may provide the only accurate record of strontium^{90} deposition in Canadian children over the past decade because the bone sampling procedures conducted in other countries will be valuable to scientists who are trying to determine the hazard to man from nuclear fallout," Dr. Hunt said.

TORONTO PROFESSORS ATTEND INTERNATIONAL RESEARCH MEETING

Three Toronto faculty members, A. M. Hunt, K. J. Paynter and J. G. Dale, attended the forty-second general meeting of the International Association for Dental Research in Los Angeles, March 19-22. Dr. Dale presented a paper on "An autoradiographic study of cell activity during tooth movement under hypothyroid conditions," and Dr. Hunt spoke on "The significance of fallout strontium^{90}."

TORONTO "OPEN HOUSE" AN OUTSTANDING SUCCESS

Approximately 1,800 visitors, many of whom are prospective dental students, visited the dental building when the Faculty of Dentistry held "Open House" on Sunday, February 16. Interesting and informative exhibits on dentistry and dental hygiene, presented by the dental students, attracted admiring comments from the visitors.

Royal Canadian Dental Corps

BRIG. BAIRD, LT.-COL. EVANS VISIT CAMP BORDEN

Brig. K. M. Baird, Director General of Dental Services for the Canadian Forces, accompanied by Col. I. A. L. Millar, Deputy Director General of Dental Services, visited Camp Borden on February 19, to confer with the staff and interview candidates attending courses at the Royal Canadian Dental Corps School.

Lt-Col. G. C. Evans was the R.C.D.C. representative at the Directorate of Military Training Conference held at Camp Borden, February 18-20.

CANADIAN OFFICERS IN GERMANY PRESENT PAPERS

Maj. D. J. MacPhee, Capt. W. R. Collier and Capt. J. F. Eadon, all of No. 4 Field Dental Company, presented papers before the Dental Professional Meeting held at Fort Chambly, Germany, January 30. Also present at the meeting were British and American confreres.

QUINTE DENTAL SOCIETY MEETS AT TRENTON AIRFORCE STATION

The dental officers of R.C.A.F. Station Trenton were hosts to the Bay of Quinte Dental

Society when the society held its winter meeting on January 29 at the Officers Mess. Mr. W. E. Jackson of the Royal College of Dental Surgeons of Ontario led a discussion on group insurance and Lt.-Col. C. M. Cornish presented a paper on the employment of technical dental therapists in the R.C.D.C. A film was also shown covering various procedures in oral surgery.

DENTAL OFFICERS TAKE CASUALTY TRAINING

The Casualty Care Course held at Camp Borden, February 17-21, was attended by Maj. A. G. Andrews, Ottawa; Maj. W. H. Carter, Ottawa; Maj. A. T. Hinch, R.C.A.F. Station Cold Lake; Maj. L. E. Kelly, R.C.A.F. Station Comox; Maj. H. E. McKenna, Montreal; Maj. C. J. Sivell, Edmonton; and Capt. K. C. Chisholm, No. 61 Dental Unit (Militia), Vancouver. With the exception of Capt. Chisholm, these officers were also candidates on the Officers Clinical Course held February 24 to March 20.

Economics

B.C. DENTAL SERVICE CORPORATION NAMES BUSINESS MANAGER

Dental Services Association of British Columbia recently announced the appointment of W. M. Paul as its business manager. Mr. Paul is a native of New Westminster, British Columbia. He is the brother of J. Paul, formerly administrator of Government Employees Medical Services of Victoria, now office manager and statistician of the British Columbia Division of the Canadian Medical Association.

Dental Services Association of British Columbia is in the process of dealing with a potential buyer of its dental care plan.

MAJOR MEDICAL BASIS BEST FOR DENTAL INSURANCE PLANS

"Major medical type" dental plans stand a good chance of success if the rate of benefit is kept low (50 or 60 per cent) D. W. Pettengill, actuary of Aetna Life Insurance Co., told an insurance conference in the United States recently. He indicated that his own company's experience over the past five years with this type of plan, using 50 per cent co-insurance, had been quite satisfactory.

The high cost associated with orthodontic treatment warrants excluding such a procedure or, at the very most, providing a modest dollar maximum, Mr. Pettengill explained.

Since accumulated dental neglect on the part of many will contribute to high dental costs, the claimant can be required to submit a chart of his teeth at the time of his first claim, and then benefits for work on teeth already missing or requiring repair can be provided at half the normal rate. On the other hand, benefits for the replacement of already missing teeth may be withheld entirely — the procedure employed in Aetna's new dental plan for its own employees.

Mr. Pettengill claimed that "a partial denture is just as effective as a bridge when there are several teeth to replace, and the cost is often substantially less." Hence, Aetna's own plan limits the covered expense for a bridge to the amount that an equivalent denture would cost.

Controlling the cost of dental expense benefits can only be achieved with the cooperation of the local dental societies in setting up committees to advise insurance companies in regard to questionable claims, he added.

INCOME OF DENTAL STUDENTS: MORE INFORMATION REVEALED

Figures in the Dominion Bureau of Statistics 1961-62 study, "University Student Expenditure and Income," show that while dental students rank highest in the percentage of total income from Department of Veterans Affairs, Department of National Defence, and Reserve Officers Training Plan subsidies (7.2 per cent), they rank lowest in the percentage of total funds from scholarships and bursaries (4.6). Twenty-four per cent of all income comes from the dental student's own earnings, 21 per cent from his wife and 16 per cent from his family.

DENTISTS' CORONARY RATES REPORTED

A recent survey by the U. S. Public Health Service of 14,000 New York residents in 14 different occupations has shown that coronary thrombosis incidence is 9.1 per cent for dentists in general practice. Rates for specialists were lower — periodontists 3.8 per cent, orthodontists 4.3 per cent and oral surgeons 6.3 per cent.

Comparable rates for other occupations were: physicians in general practice 11.9 per cent; lawyers in general practice 11.0 per cent; stock brokers (market analysts) 7.5 per cent; stock brokers (floor traders) 11.9 per cent.

H. I. Russek, survey director, says the results support the theory of emotional stress accelerating hardening of the arteries when the diet is relatively high in animal fat.

DUTIES OF DENTAL HYGIENISTS AND ASSISTANTS UNDER STUDY IN ALABAMA

Experimentation with the duties of dental hygienists and dental assistants is one of the programs under study in the new dental education research building of the University of Alabama School of Dentistry in Birmingham, according to the dean, C. A. McCallum, Jr. Two other projects to be undertaken are the increased use of dental assistants and a pilot prepaid dental care program. The new building was formally dedicated April 3.

Fluoridation

RESEARCH COUNCIL ANSWERS FLUORIDATION CRITICISM

The Council on Research of the Canadian Dental Association has issued a statement which reaffirms its approval of water fluoridation and takes issue with some conclusions of a paper published by National Research Council of Canada workers. The paper by three NRC workers was used by John Lear, science editor of *Saturday Review*, in a recent article to support his opposition to water fluoridation.

NRC President B. G. Ballard has been quoted in the press as saying that NRC neither supports nor opposes water fluoridation. The publications of its scientists represent their own points of view and do not require NRC's endorsement, he said. Dr. Ballard said he would not take issue with the C.D.A. statement, which follows:

> The Council on Research of the Canadian Dental Association has reviewed the article, "Accumulation of Skeletal Fluoride and its Implications" by J. R. Marier, D. Rose and M. Boulet, which appeared in *Archives of Environmental Health*, 6:664, 1963.
>
> This paper is a review which contains no original research. It advances certain unfounded theories which might be construed as reflecting unfavourably on the safety of water fluoridation.
>
> All the evidence which has been cited in the article to support the authors' opinions is well known to research workers in this field. Many references report work dealing with concentrations of fluoride many hundreds of times higher than the one part per million used in water fluoridation.
>
> It is the opinion of the Council on Research of the Canadian Dental Association that the article in question presents no evidence to refute the well-established scientific conclusion that water fluoridation is a safe and effective method of partially preventing dental decay.

Before the Council's statement was adopted, representatives of Council made a detailed review of the article by Marier, Rose and Boulet. They found no new data in the paper which, they said, is a review of a small portion of the literature in the field of fluoride metabolism. There is nothing in the original papers which Marier, Rose and Boulet cited as references, or in their suggestions, that would warrant a delay in instituting the fluoridation of water as a caries prophylaxis measure.

The NRC paper was also a subject of recent discussion in the House of Commons. In answer to a question, the Minister of National Health and Welfare replied:

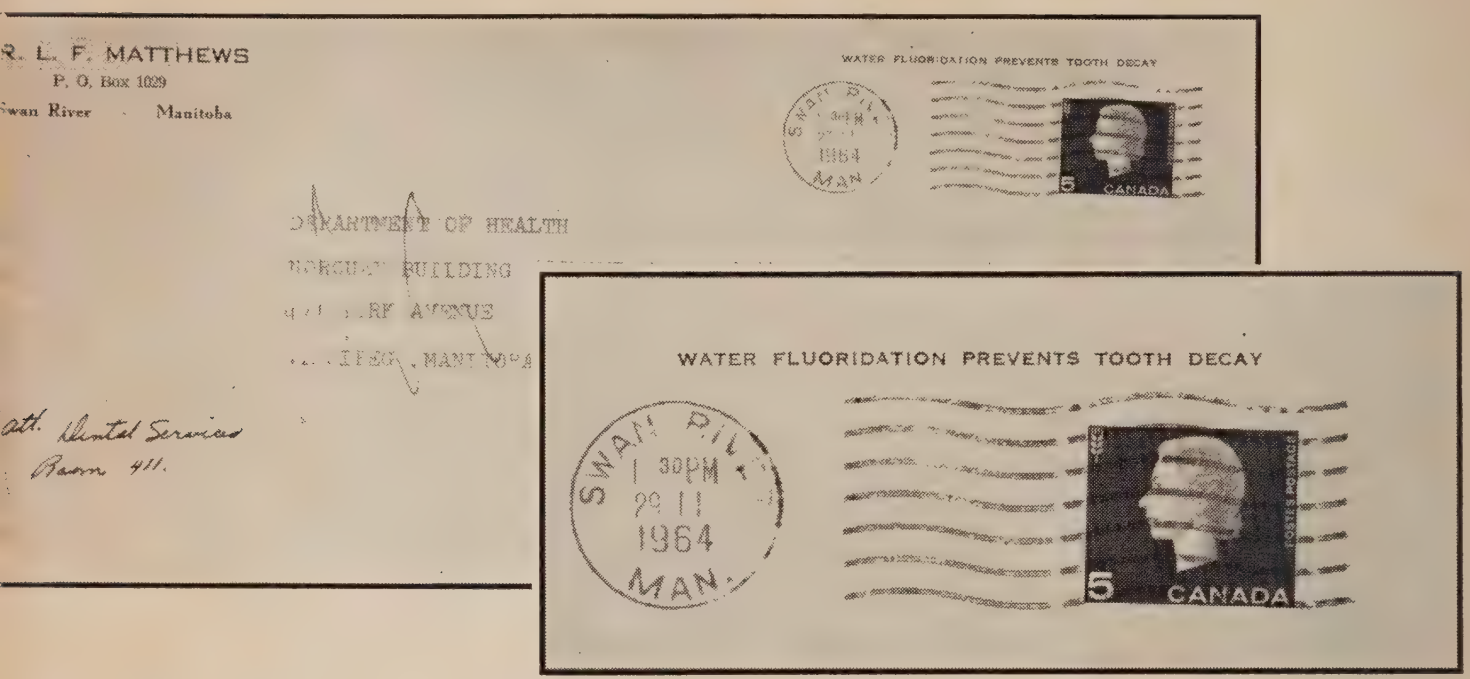
> Mr. Speaker, no government action is contemplated at this time. The article in question was brought to my attention a few weeks ago when it first received Canadian attention. It has been discussed with the members of my department as well as with members of the national research council. It is not contemplated that any action will be taken.

SEEK TWO-THIRDS MAJORITY CHANGE

The Alberta Dental Association will urge the provincial government to have fluoridation introduced on a simple majority vote. At present Alberta law requires a majority of two-thirds in municipal plebiscites before permitting fluoridation. The Edmonton *Journal* has editorially supported such a change.

FLUORIDATION IN SASKATCHEWAN

During 1962 twelve additional communities in the province of Saskatchewan commenced fluoridation of their water supplies, according to the annual report of the Department of Public Health of that province. This made a total of 40 municipalities adding fluoride to their public water systems affecting a population of 227,060 or 24.5 per cent of the total population of the province. The report states that up to 60 per cent reduction in tooth decay rates has been shown after ten years of fluoridation in some of the communities. Regina, North Battleford and Yorkton have not yet adopted this public health measure.



Recipients of letters from L. F. Matthews of Swan River, Manitoba, are left in no doubt about the benefits of water fluoridation.

Fluoride tablets are supplied to expectant mothers and preschool age children in rural areas where the water supplies cannot be satisfactorily fluoridated. The program has been officially endorsed by the dental profession as dentists are in short supply in the rural areas, the report states.

FLUORIDATION URGED IN NEW BRUNSWICK AS SUPPLY OF DENTISTS DECLINES

R. S. Langstroth, Director of Dental Health Services for the province of New Brunswick, stresses in his 1963 annual report the problem of the declining number of dentists and dental students in relation to the increasing population. During the last ten years the number of dentists increased by 10, or 8.8 per cent, while the population of the province increased by 15.4 per cent.

Permissive legislation has not yet been enacted in New Brunswick for fluoridating the communal water supplies. The matter is now before the Union of New Brunswick Municipalities for consideration. The Department of Health urges the adoption of fluoridation as the most practical method of reducing the incidence of tooth decay, Dr. Langstroth says.

SWAN RIVER DENTIST SHOWS INITIATIVE

L. F. Matthews, a Swan River dentist and alderman, recently illustrated one means of promoting fluoridation in his community. To demonstrate his support for fluoridation, the upper right hand corner of Dr. Matthew's business envelopes bears a printed slogan, "Water fluoridation prevents tooth decay."

Public Health

A. E. CHEGWIN RETIRES

A. E. Chegwin, director of the Dental Health Division of the Saskatchewan Department of Public Health, retired at the end of December 1963. Dr. Chegwin was an ardent supporter of fluoridation. He also promoted the use of fluoride tablets among preschool children in Saskatchewan communities with no water supply. Recently, Dr. Chegwin visited New Zealand as member of a Saskatchewan mission investigating the employment of New Zealand dental nurses. He is a life member of the Canadian Public Health Association.

correspondence

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

PREFERS INDIVIDUALLY DESIGNED JOURNAL COVERS

To the Editor:

In view of the possibility of public disclosure of the report of the Royal Commission on Health Services the forthcoming meeting of the Canadian Dental Association may be one of the most important in our history. Would it therefore not be in order for the Journal to make a very special effort to get as many of our members as possible to the meeting? It would seem to me that with the meeting date being June 28 to July 1, the mountains being so close and the Calgary Stampede being during the week of July 6-10, our meeting could well be considered as a "bring-the-family" meeting. The trip from Jasper to Banff is one of the most scenic in the world and the road is quite good. In view of all these factors why not consider putting out the Journal with a different cover each month for two or three months. While I am sure the cost would be higher than usual would it not be reasonable to suggest that scenes of the mountains, the Calgary Stampede and Edmonton be put on the cover to attract our members to the meeting?

As far as the program is concerned why not put feature notices on the front page such as:

Paedodontics: See page—(inside this issue)

Prosthodontics: See page — (inside this issue)

While I admit that I am not acquainted with your problems as editor, I make these suggestions having just read the recent paper by L. E. Hendershot in the *Northwestern University Dental School Bulletin,* entitled "An Editor Listens to His Readers."

C. R. Castaldi, D.D.S., M.S.D.,
Professor of Paedodontics,
University of Alberta,
Edmonton, Alberta.

We welcome Dr. Castaldi's proposals for special individually designed covers on issues of the Journal preceding the forthcoming national convention. Unfortunately, present resources do not permit implementation of Dr. Castaldi's suggestions without supplementary budgetary allocation and approval by the Executive Council. Possible future action on Journal cover treatment necessitates consideration of other forthcoming events that might warrant similar treatment, and requires appropriate budgetary allotment. The Journal would welcome opinions from other readers on this subject. *(Ed.)*

ENDODONTIC TERMINOLOGY

To the Editor:

I must take exception to Dr. Yury Kuttler's attempts at new terminology (Endodontics: vague practice or scientific discipline, J. Canad. D.A. 30:20, 1964). Although I agree with his desire to simplify terms, "para-endodontic alterations" would seem to belie his interest.

"Endodontic" (with + tooth) alterations would seem to be a specific and limited term. "Para" (beside) would still suggest to most readers alterations in tooth structure itself—or am I being difficult? Actually Dr. Kuttler should use "apical paradontal alterations" more specifically, as paradontal is a term already well known, meaning all the tissues adjacent to a tooth. Apical would limit the area to his particular interest.

I agree with his point on "Endodontic" surgery although by common usage I use the term. In an essay on "Endodontic Surgery" which I presented at the 1964 Chicago Mid-Winter meeting this was the title in my opening sentence. I refer to "Surgical

Procedures" that extend the scope of endodontic therapy. This I believe is the more accurate usage.

F. James Marshall, D.M.D., M.S.,
Associate professor, Endodontology
and Oral Histology,
University of Manitoba,
Winnipeg 3, Manitoba.

To the Editor:

I like to thank Dr. F. J. Marshall for taking the trouble of commenting on my two examples of improved endodontic terminology (J. Canad. D.A. 30:20, 1964).

In my article, "Depuración de Términos Endodóncicos," published in *La Tribuna Odontológica* (Buenos Aires), p. 62, March-April 1963, there are about a hundred of these proposed improvements that I am sure he will enjoy, even though he takes "exception to my attempts at new terminology." "Common usage" of wrong, vague, confused, incomplete and generalized terms and opposition to better and scientific nomenclature arrest progress. The above-mentioned article will be presented next June in Mexico City, for discussion and approval by learned men in semantics, at Seminar No. 1 of our 1st Congress of the Ibero-american Confederation of Endodontists; therefore I cordially invite Dr. Marshall to participate in this seminar.

Dr. Marshall in his letter wrongly describes "endodontic" as "with tooth." "Endo" is not "with" but "inside," and "para" means not only "beside" but also signifies "near, continuation, beyond."

"Apical" is a very limited term (the last 2 or 3 mm. of a root); therefore, I use it only in its precise meaning.

My new term "para-endodontic" embraces, from a general viewpoint, all the special regions beyond the endodontium: apical, periapical, periradicular, interadicular, lateroradicular, alveolar, para-alveolar, and so forth. I prefer the broad qualification of "alterations" (primary, secondary, anatomical, histological, physiological, pathological, post mortem, acute, chronic, subacute, and so forth) before making a more precise diagnosis.

"Paradontal" is altogether an erroneous name because, as Dr. Marshall himself states, it means "all the tissues adjacent to a tooth." There are no tissues adjacent to the crown. There are tissues adjacent only to the root, and often these do not extend around all of the root. Therefore my correct name is "peririzondontic," and the specialty becomes "peririzondontics" instead of para-or periodontics.

Yury Kuttler, D.D.S., M.D.,
Calle Hamburgo 250,
Mexico 6, D.F.,
Mexico.

book reviews

ORBAN'S PERIODONTICS

D. Grant, I. B. Stern and F. G. Everett. Ed. 2. St. Louis, C. V. Mosby Co. 595 p. Illus. $15.50

This book is a tribute paid to a great teacher by a number of his disciples. It is truly a co-operative effort since no less than forty teachers and practitioners contributed to this work.

The result is an extremely interesting book which presents an important cross-section of modern periodontal teaching that has evolved from Dr. Orban's efforts in basic and clinical teaching and research.

The aims of this work, set prior to his death by Dr. Orban and the co-authors, are clearly expressed in the preface:

"That the adherence to basic biologic principles would remain the cornerstone of the book and that therapy would be treated with equal emphasis but that rigid adherence to inchoate and rapidly changing techniques would be avoided; rather the basic knowledge from which the dentist can understand, evaluate and apply his treatment would be stressed.

"The effective teaching of periodontics requires that it be integrated into all phases of dental practice."

It is the personal opinion of this reviewer that the authors have been successful in reaching the objectives which they set for themselves. The soundness of these objectives and the soundness of judgement manifested in reaching them make this book a truly valuable contribution to the dental literature.

Little space is wasted on discussion of minute details of theory or highly specialized operative techniques which could interest only a researcher or a specialist involved in the study of a very limited topic.

The material presented is rather basic, entirely applicable, and easily digested by the average general practitioner who is not deterred by the sight of a histological section.

The first part of the book reviews the periodontium in health and in disease at the clinical, radiographic and cellular level. It is followed by Dr. Orban's personal views on the controversial subject of the classification of periodontal diseases.

While this section does not cover everything known about the periodontium, it nevertheless represents an adequate review and a sound starting point for the student, young or old, who wishes to pursue further study in this fascinating field.

The authors describe a sound procedure for examination of the patient. The chapters on diagnosis, prognosis and treatment planning are perhaps too short to cover these important areas adequately. It will, however, always be extremely difficult to crystallize in print such intangibles as clinical judgment and experience.

There is a generous clinical section that covers everything from root planing and home care to basic and advanced periodontal surgery, without overlooking the more or less acute conditions which require immediate treatment.

The chapter on traumatic periodontal destruction is most interesting and well organized. Changes are first explained at the cellular level by the use of experimental and autopsy material. Clinical observations and techniques then lead into a discussion of orthodontic measures, splinting, and periodontal considerations in restorative dentistry. This information will help to breach the wall which all too often isolates periodontics from general dental practice.

The chapters on re-evaluation of the treated patient and on maintenance will prove invaluable to the busy clinician.

In the last few years greatly increased attention has been devoted to periodontics. This has been accompanied by the appearance of many excellent textbooks on the subject. *Orban's Periodontics* should be added to this long list as a welcome addition to any library.

Georges Pelletier

additions to the library

HENDERSON, T. B. The History of the Glasgow Dental Hospital and School, 1879-1959. 62 p. illus. $2.50

LASKIN, D. M. Management of oral emergencies. Springfield, C. C. Thomas, 1964. 107 p. illus. $6.50

McADAM, D. B. Rubber dam. (Practical Dental Monographs, January 1964.) 35 p. illus.

SAMSON, Edw. Men, manners and molars. London, Pitman Medical Publishing Co. Ltd., 1963. 139 p. illus. $4.50

YEAR BOOK OF ANESTHESIA, 1963-1964 Series. Chicago, Year Book Medical Publishers, 1964. 392 p. $9.35

YEAR BOOK OF DENTISTRY, 1963-1964 Series. Chicago, Year Book Medical Publishers, 1964. 511 p. illus. $8.25

YOUNG, J. Outline of oral and dental anatomy. Toronto, McGraw - Hill, 1964. 185 p. illus. $6.50

in memoriam

E. ROY BIER—Dr. E. R. Bier of Winnipeg died on February 3, 1964. He was 74. Dr. Bier was born in Waterloo County, Ontario, in 1889. Following graduation from the Royal College of Dental Surgeons of Ontario in 1916, he practised in Winnipeg. During World War I he served with the Royal Canadian Dental Corps. Dr. Bier was a life member of the Manitoba Dental Association, past president of the Canadian Society of Oral Surgeons as well as a member of the Great Lakes Society of Oral Surgeons and the Winnipeg Dental Society. Besides his wife, Myrtle, Dr. Bier is survived by a daughter, Mrs. F. O. Myles of Vancouver, and two grandchildren.

WILLIAM JOHN BUTCHER—Dr. W. J. Butcher of Brooklin, Ontario, died on February 3, 1964. He was 66. Dr. Butcher was born in Brock Township, Ontario, in 1897. He graduated from the Royal College of Dental Surgeons of Ontario in 1923 and practised in Toronto until 1926. He then went to Chicago where he practised from 1927 until 1928, and to St. Louis from 1928 until 1929 when he returned to Toronto. He served with the Canadian Expeditionary Force during World War I. In 1951 Dr. Butcher retired from active practice. Besides his wife, Minnie, he is survived by a son, John Keith of Espanola; three sisters, Amelia Butcher, Mrs. H. Gilson and Mrs. C. Powell; and two brothers, Ernie and Lloyd.

JOHN ALBERT DEAN—Dr. J. A. Dean of Wexford, Ontario, died on February 16, 1964. He was 76. Dr. Dean was born in Mono Road, Ontario, in 1887 and graduated from the Royal College of Dental Surgeons of Ontario in 1913. He engaged in practice in Kenora, Ontario, retiring in 1954. During World War II he served as captain with the Canadian Dental Corps. Surviving Dr. Dean are three sisters, Miss Mary Dean and Mrs. F. Phoenix of West Hill, Ontario, and Mrs. W. Bailey of Nelson, British Columbia.

JOHN RUTHERFORD HOAG—Dr. J. R. Hoag of Regina died on February 13, 1964. He was 67. Dr. Hoag was born in Oak Lake, Manitoba, in 1897. Following graduation from the University of Toronto in 1927, Dr. Hoag practised in Niagara Falls and later in Regina. He was a former president of the Regina District Dental Society. Dr. Hoag is survived by his wife and three daughters.

ERNEST FLETCHER JAMIESON—Dr. E. F. Jamieson of Windsor, Ontario, died on February 20, 1964. He was 74. Dr. Jamieson was born in Rosemount, Ontario, in 1889. He received his early education in Orangeville and graduated from the Royal College of Dental Surgeons of Ontario in 1916. Dr. Jamieson practised in Windsor and in 1937 served as president of the Essex County Dental Society. During World War I he served as captain with the Canadian Army Dental Corps. Besides his wife, Florence, Dr. Jamieson is survived by a daughter, Mrs. Robert Dixon, and two brothers, Hilliard of Thornton, Ontario, and William of Winnipeg.

WILLIAM OLIVER KAUFMAN—Dr. W. O. Kaufman of Tavistock, Ontario, died on February 21, 1964. He was 73. Dr. Kaufman was born in East Zorra Township, Ontario, in 1890 and graduated from the Royal College of Dental Surgeons of Ontario in 1917. Dr. Kaufman leaves one son and one daughter, Lloyd of Grand Rapids, Michigan, and Marie of Hamilton, Ontario; five brothers, Charles, Andrew and Thomas of Tavistock, Abel and Walter of East Zorra Township; and five sisters, Mrs. F. Pearson and Mrs. H. Eckstein of Tavistock, Mrs. L. Appel of Stratford, Mrs. L. Roth of New Hamburg and Mrs. C. Hasenpflug of Milverton.

JEAN CLAUDE LAURENCE—Le Dr J. C. Laurence de St-Hyacinthe, P. Québec, âgé de 40 ans, est décédé le 12 février 1964. Le Dr Laurence était né à Coaticook, P. Québec, en 1923 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1950.

WILLIAM STANLEY MADILL—Dr. W. S. Madill of Toronto died on February 28, 1964. He was 73. Dr. Madill was born in Toronto in 1890. He received his early education in Peterborough and graduated

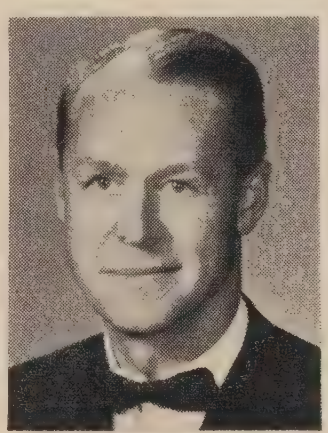
from the Royal College of Dental Surgeons of Ontario in 1911. Following graduation he practised in Powassan, Ontario, before going to Toronto. Dr. Madill engaged in private practice in Toronto as well as serving as director of dental services at Toronto Western Hospital until his retirement in 1962. In 1961 he was made a life member of the Royal College of Dental Surgeons of Ontario. Dr. Madill served as a captain in World War I and as major in World War II. He is survived by his wife, Jean.

FRED CLARENCE VAN DUZER—Dr. F. C. Van Duzer of Toronto died on February 11, 1964. He was 88. Dr. Van Duzer was born in Grimsby, Ontario, in 1875. He received his early education in Grimsby and graduated from the Royal College of Dental Surgeons of Ontario in 1900. He practised in Hamilton for two years and then went to Toronto where he became connected with the Hospital for Sick Children. In 1950 he was made a life member of the Royal College of Dental Surgeons of Ontario. Dr. Van Duzer is survived by two sons, Leonard A. and Jack F., both of Montreal.

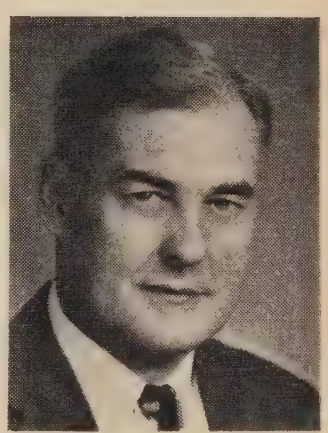
GEORGE ARCHIBALD WATSON—Dr. G. A. Watson of Stayner, Ontario, died on February 8, 1964. He was 58. Dr. Watson was born in Stayner in 1905 and graduated from the Royal College of Dental Surgeons of Ontario in 1929. He is survived by his wife, Edith; a daughter, Mrs. J. Dickson of Toronto; and one son, Robert Alan of Stayner.

conventions

Four C.D.A. specialty sections to meet in Edmonton, June 28 to July 1



D. S. Moore



G. J. Parfitt

Scientific meetings are scheduled by each of the four specialty sections during the national convention of the Canadian Dental Association, June 28 to July 1, 1964. All section meetings will be held in the Macdonald Hotel, Edmonton. Individual section programs are as follows:

Canadian Academy of Periodontology

Sunday, June 28

11.00 a.m.	R. V. Blackmore, Edmonton: Experimental propagation of *Herpesvirus hominis*
3.00 p.m.	D. S. Moore, Hamilton: Periodontal practice administration or oral diagnosis
4.00 p.m.	G. J. Parfitt, Vancouver: Structure and function of the periodontal membrane

Canadian Society of Dentistry For Children

Sunday, June 28

9.00 a.m.	Registration

9.30 a.m.	I. KLEINBERG, Winnipeg: Recent findings on the dental plaque and relation to dental caries
11.00 a.m.	Table clinics
12.00 noon	Canadian Society of Dentistry for Children Luncheon
1.30 p.m.	I. KLEINBERG, Winnipeg: Recent findings on the dental plaque and relation to calculus formation
3.00 p.m.	Panel discussion
5.00 p.m.	Social hour; ladies invited
7.30 p.m.	Sunday evening musicale

CANADIAN SOCIETY OF ORAL SURGEONS

Monday, June 29

9.00 a.m.	Late registration
10.00 a.m.	M. G. STRELIOFF, Edmonton: Oral-antral fistulas. Comment by T. G. Ward Panel discussion (T. G. WARD, London, England, guest panelist): Treatment of cysts
12.15 p.m.	Canadian Dental Association Luncheon
2.00 p.m.	E. W. P. LUXFORD, Calgary: Subcondylar fractures. Comment by T. G. Ward
3.15 p.m.	Panel discussion (T. G. WARD, guest panelist): Treatment of infection and efficacy of newer drugs
4.30 p.m.	T. G. WARD: Summary comments

Tuesday, June 30

9.00 a.m.	DR. AARONS: Allergies — a new testing method
9.45 a.m.	A. D. SPARROW, Calgary: The immediate denture
10.30 a.m.	T. G. WARD: Essayist on the general convention program
12.00 noon	Alberta Government Luncheon
2.00 p.m.	R. S. VAN ALSTINE, Edmonton: Tumour treatment
3.15 p.m.	Business meeting

CANADIAN SOCIETY OF ORTHODONTISTS

Monday, June 29

9.00 a.m.	Table clinics
10.00 a.m.	T. M. GRABER, Kenilworth, Illinois: The three "M's" and recent cleft palate studies
12.15 p.m.	Canadian Dental Association Luncheon
2.30 p.m.	T. M. GRABER: Headgear treatment

Tuesday, June 30

9.00 a.m.	Table clinics presented by the Western Canada Orthodontic Study Group
10.30 a.m.	G. H. SPERBER, University of Alberta, Edmonton: Jaws, genes and evolution
12.00 noon	Alberta Government Luncheon
2.00 p.m.	George Wellington Grieve Memorial Lecture by T. M. GRABER: Panoramic radiography
3.00 p.m.	Canadian Dental Association feature panel presentation

Wednesday, July 1

9.00 a.m.	G. V. DAVIDSON, University of Alberta, Edmonton: Equilibration and orthodontics
11.00 a.m.	Panel discussion
12.00 noon	City of Edmonton Luncheon
2.00 p.m.	Business meeting

Subjects of table clinics are:

Space regaining — R. D. Haryett, Edmonton
Crossbites — Z. M. Pawliuk, Edmonton
Orthodontics in the deciduous dentition — G. C. Swann, Calgary
Value of earlier extractions and size problems; some simple appliances that can be used by the general practitioner — J. G. Mitchell, Regina
Spasavers — J. J. Schachter, Saskatoon

Impacted maxillary cuspids — G. W. Street, Calgary
Adult orthodontics — R. M. Perry, Calgary
Simple orthodontic procedures with removable appliances — D. N. Allen, Calgary
Habit prevention — A. R. S. Gray, Calgary
Complete records in orthodontics — V. E. Christow, Lethbridge
Routine equilibration in general practice — R. P. Mullen, Edmonton

97th annual Ontario Dental Association convention in Toronto, May 10-13

The 97th annual convention of the Ontario Dental Association will be held at the Royal York Hotel, Toronto, May 10-13, 1964. The diversified program includes projected clinics, table clinics, a dinner-dance and class reunions. The featured clinicians are:

J. B. Hyde, Milford, Delaware
L. I. Grossman, Philadelphia
J. E. Flocken, Capt. U.S. Navy, Bethesda, Maryland
S. R. Baldinger, Washington
E. C. Miller, Shaker Heights, Ohio

British Columbia Dental Association meets in Vancouver, May 21-23

The annual convention of the British Columbia Dental Association will be held at the Queen Elizabeth Playhouse, corner Dunsmuir and Hamilton Streets, Vancouver, May 21-23, 1964.

The principal clinicians and essayists are:

H. J. Bloom, of Detroit, Michigan, and dental director of the hospital ship "HOPE"
Claes Lundqvist, of Lund, Sweden
R. B. Shira, Col., U.S. Army, of Washington

B.C. Dental Association
Convention
May 21-23, 1964

Queen Elizabeth Playhouse
Dunsmuir and Hamilton Streets
Vancouver, British Columbia

Registration Form

Name of dentist_____

Address_____

City_____ Province_____

Wife's name_____

All-inclusive registration fee: $40 (single), $10 (wife). Include both fees on one cheque and make payable to British Columbia Dental Association. For your own convenience please register in advance. You are responsible for obtaining your own accommodation.

announcements

	CANADIAN DENTAL ASSOCIATION		FÉDÉRATION DENTAIRE INTERNATIONALE	
1964	Edmonton	June 28-July 1	San Francisco	November 7-14
1965	Quebec City	May 30-June 2	Vienna	June 26-July 3
1966	Halifax	June 12-15	Israel	
1967	Toronto	May 14-17	Paris	

FUTURE EVENTS

Date	*Function*	*Location*	*Officer*	*Address*
May 6-10, 1964	Belgian Dental Congress	Knokke-le Zoute, Belgium	Dr. A. G. Vermeersch	8 Place Foch, Louvain, Belgium
May 9, 1964	Canadian Society of Dentistry for Children, Ontario Chapter	Royal York Hotel, Toronto	Dr. G. E. Burgman	1893 Main Street, Niagara Falls, Ont.
May 10-13, 1964	Ontario Dental Association	Royal York Hotel, Toronto	Mrs. W. C. Durham	230 St. George Street, Toronto 5, Ont.
May 21-23, 1964	British Columbia Dental Association	Queen Elizabeth Theatre, Vancouver	Dr. W. R. Upton	325-925 West Georgia Street, Vancouver, B.C.
21-23 mai, 1964	Association dentaire de la province de Québec	Ste-Marguerite du Lac Masson	Dr P. A. Lachance	281 St-Georges, St-Jérome, P.Qué.
June 10-13, 1964	Netherlands Dental Association	Scheveningen, Netherlands	Dr. J. E. Stork	Adriaan Goe Kooplan 1, The Hague, Netherlands
18-24 juin, 1964	Semaine odontologique internationale	Porte de Versailles, Paris, France	M. Jacques Charon	12 rue du 4-Septembre, Paris 2e, France
June 25-28, 1964	Anglo-Continental Dental Society	London, England	Dr. R. O. Leaver	76 Heaton Park Drive, Bradford 9, Yorkshire, England
June 28, 1964	Canadian Society of Dentistry for Children	Macdonald Hotel, Edmonton	Dr. C. R. Castaldi	Faculty of Dentistry, U. of Alta., Edmonton, Alta.
June 28, 1964	Canadian Academy of Periodontology	Macdonald Hotel, Edmonton	Dr. J. E. Speck	170 St. George Street, Toronto 5, Ont.
June 29-30, 1964	Canadian Society of Oral Surgeons	Macdonald Hotel, Edmonton	Dr. D. H. MacDonald	2 College Street, Toronto 2, Ont.
June 29-July 1, 1964	Canadian Society of Orthodontists	Macdonald Hotel, Edmonton	Dr. J. J. Schachter	209 Canada Bldg., Saskatoon, Sask.
June 29-July 3, 1964	British Dental Association	London, England	Dr. J. N. Peacock	13 Hill Street, London W.1, England
July 5-8, 1964	Atlantic Provinces Dental Convention	Charlottetown, Prince Edward Island	Dr. L. I. Duffy	202 Queen Street, Charlottetown, P.E.I.
July 7-10, 1964	American Dental Society of Europe	Brighton, England	Dr. A. E. F. Sturridge	35 Harley Street, London W.1, England
July 7-11, 1964	European Orthodontic Society 40th International Congress	Athens, Greece	Prof. H. N. Haralabakis	Acadimias 31, Athens 135, Greece

cda retirement savings plan
plan d'épargne-retraite adc

Statement: February 29, 1964

Relevé au 29 février 1964

The Canadian Dental Association Retirement Savings Plan provides dentists in Canada with a flexible method of investing savings on which they may obtain tax deferment. Three separate investment funds are available to participants namely a Government Bond Fund, a Corporate Bond Fund and a Common Stock Fund.

GOVERNMENT BOND FUND

The Government Bond Fund is invested in Canada, provincial, and municipal bonds and mortgages guaranteed under the National Housing Act. The unit price reflects accumulated income and fluctuations in interest rates.

Market value of fund	$340,941
Unit value of fund	$12.657

CORPORATE BOND FUND

The Corporate Bond Fund is invested in fixed income obligations of companies incorporated in Canada, the United States or the United Kingdom and in conventional mortgages. The unit price reflects accumulated income and fluctuations in interest rates.

Market value of fund	$615,015
Unit value of fund	$13.429

COMMON STOCK FUND

The Common Stock Fund provides a medium for investing in equities and for participating in the long-term growth of the economy. The unit value reflects changes in the stock market prices and the general economic conditions together with accumulated income.

Market value of fund	$1,698,177
Unit value of fund	$16.962

Further information can be obtained from the Canadian Dental Association Retirement Savings Plan, 2249 Yonge Street, Toronto 7, Ontario or from the nearest branch of the Royal Trust Company.

Le programme d'épargne-retraite de l'Association dentaire canadienne procure aux dentistes du Canada un moyen souple de placer leurs épargnes tout en bénéficiant d'un retardement d'impôt. Trois fonds de placements distincts sont à leur disposition, à savoir: un fonds d'obligations gouvernementales, un fonds d'obligations corporatives et un fonds d'actions ordinaires. Les participants peuvent varier leurs contributions entre les fonds, ou encore effectuer le transfert d'un fonds à un autre sans être sujets à l'impôt.

FONDS D'OBLIGATIONS GOUVERNEMENTALES

Le fonds d'obligations gouvernementales est investi dans des obligations et débentures du Canada ou garanties par celui, d'une province du Canada ou d'une municipalité et d'hypothèques garanties en vertu de la Loi nationale sur l'habitation. Le prix unitaire reflète le revenue accumulé et les fluctuations des taux d'intérêt.

Valeur du fonds au marché	$340,941
Valeur unitaire du fonds	$12.657

FONDS D'OBLIGATIONS CORPORATIVES

Le fonds d'obligations corporatives est placé dans des obligations à revenu fixe de sociétés incorporées au Canada, aux Etats-Unis ou dans le Royaume-Uni et dans des hypothèques conventionnelles. Le prix unitaire reflète le revenu accumulé et les fluctuations de taux d'intérêt.

Valeur du fonds au marché	$615,015
Valeur unitaire du fonds	$13.429

FONDS D'ACTIONS ORDINAIRES

Le fonds d'actions ordinaires procure un moyen de placement sous forme d'avoir et de participation dans la croissance à long terme de l'économie. Les placements dans des sociétés canadiennes prédominent mais des investissements peuvent être faits à l'extérieur du Canada afin de profiter d'occasions particulièrement intéressantes. La valeur unitaire reflète les fluctuations des prix du marché, la situation économique générale ainsi que le revenu accumulé.

Valeur du fonds au marché	$1,698,177
Valeur unitaire du fonds	$16.962

On peut obtenir d'autres renseignements en s'adressant au Plan d'épargne-retraite de l'Association dentaire canadienne, 2249 rue Yonge, Toronto 7, Ontario ou à la succursale la plus rapprochée de la Royal Trust Company.

Common stock fund as at February 29, 1964 • Fonds d'actions ordinaires au 29 février 1964

Description	Number of shares Nombre d'actions	Value Valeur
Canadian stocks • Actions ordinaires canadiennes		
Banks, Trust and Mortgage Companies • Banques, compagnies de fiducie et de prêts hypothécaires		
Bank of Montreal	800	$ 49,400
Bank of Nova Scotia	550	37,950
Royal Bank of Canada	550	39,806
Huron and Erie Mortgage	1,400	95,900
Beverages • Breuvages		
Canadian Breweries	6,700	65,325
Hiram Walker—Gooderham & Worts	1,200	74,700
Finance and Loan • Compagnies de prêts et finance		
Industrial Acceptance	1,600	37,400
Forest Products • Produits forestiers		
Dominion Tar & Chemicals	1,500	27,937
Great Lakes Paper	1,000	23,125
MacMillan, Bloedel & Powell River	1,500	40,125
Iron and Steel • Industrie lourde et de l'acier		
Algoma Steel	1,000	57,750
Dominion Foundries & Steel	500	34,938
Steel Company of Canada	2,200	49,775
Merchandising • Détaillants		
Simpsons	585	23,327
Geo. Weston, Class "B"	1,650	30,525
Metals • Métaux		
International Nickel	800	61,300
Miscellaneous • Divers		
Massey-Ferguson	2,000	37,000
Moore Corporation	1,350	71,044
Southam	1,300	35,425
Petroleum • Pétroles		
Imperial Oil	250	11,312
Pipelines		
Interprovincial Pipelines	700	56,700
Trans-Canada Pipe Lines	1,300	45,175
Electric Utilities • Electricité		
Calgary Power	2,500	53,750
International Utilities	1,800	43,200
Gas distribution • Distribution de gaz		
Consumers' Gas	6,000	69,750
Telephone • Téléphone		
Bell Telephone	800	43,100
Total		$1,215,739
Foreign stocks • Actions ordinaires étrangères		
Aviation		
North American Aviation	700	39,711
Chemicals • Produits chimiques		
W. R. Grace	1,000	53,760
Hercules Powder	1,100	51,557
Monsanto Chemicals	800	58,248
Electrical products • Produits électriques		
General Electric	220	20,357
Insurance • Assurance		
Insurance Co. of North America	300	31,446
Lincoln National Life	200	37,066
Miscellaneous • Divers		
I.B.M.	130	79,934
Petroleum • Pétroles		
Royal Dutch Petroleum Co.	1,000	46,600
Telephone • Téléphone		
American Telephone and Telegraph	300	46,257
Total		$464,936
Total securities • Valeur totale		$1,680,675
Cash and short term investments • En caisse et placements à courte échéance		17,502
Total value • Valeur globale		1,698,177

L'Association Dentaire Canadienne

JOURNAL

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The Canadian Dental Association

Psychologie de l'enfant chez le dentiste

par Georges Perreault, D.D.S., Montréal, et Guy LaHaye, D.D.S., Ville St-Laurent, P.Qué.

DR PERREAULT

L'enfant, à sa première visite chez le dentiste, se trouve dans une phase nouvelle et importante de sa vie.

Sa réaction à cette situation inusitée se conditionne par l'environnement. Si le climat psychologique dans lequel il vit — d'abord sa famille — est favorable à son épanouissement, il s'adapte au monde extérieur selon les normes de la société.

Il faut réaliser, pour que cette adaptation soit bonne, que la période de l'enfance en est une d'évolution et d'apprentissage: le dentiste, pour traiter l'enfant avec succès, doit être familier avec son comportement aux différents stades de sa vie. Le problème fondamental de la dentisterie chez les enfants en est un de communication.

A deux ans, les mots seuls ne suffisent habituellement pas; il faut faire voir, montrer, laisser toucher certains instruments. Il est préférable, à cet âge, puisque le développement social de l'enfant n'est pas très avancé, de le laisser accompagner par un de ses parents.

A trois ans, les échanges avec l'enfant sont beaucoup plus faciles. La coopération

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Colloque organisé par la Société dentaire de Montréal, le 21 janvier 1964.

s'établit spontanément si le dentiste lui fait comprendre la nécessité d'une intervention, en lui fournissant des raisons qu'il peut comprendre.

A quatre ans, l'enfant accueille favorablement les instructions et les explications verbales.

A cinq ans, l'enfant a atteint l'âge où il accepte volontiers les activités du groupe. Le sens des relations sociales et personnelles est mieux défini et il peut avec moins d'appréhension se séparer de ses parents.

A six ans, s'établit le début de la dissociation de l'enfant du milieu familial et des regressions passagères sont normales. Cette communication avec l'enfant doit être graduée selon le palier ou le niveau du développement intellectuel de l'enfant. Le vocabulaire et le sens des mots deviennent d'une importance primordiale pour créer cette communication. Les mots ronflants et les grands discours n'ont pas leur place. La conversation doit être faite et les explications données avec des mots qu'il comprend. Les images et les comparaisons que le dentiste utilise dans ses contacts avec l'enfant doivent correspondre à des choses que l'enfant connaît déjà. Il faut que le dentiste s'assure que le petit comprend bien le sens des mots qu'il emploie. Exemple: gencive, carie, etc.

En un mot, il faut toujours se rappeler qu'une expérience inédite est pour l'enfant la découverte d'un monde inconnu et que sa réaction à ce "nouveau", sa compréhension de cette situation nouvelle, est en rapport direct avec la façon dont on a procédé pour dissiper son appréhension. Les mots sont non seulement essentiels à la communication, mais ils servent à jauger le petit patient.

La compréhension du sens des mots à différents âges, leur nombre et leur utilisation constituent des critères importants dans l'évaluation d'abord de l'enfant et ensuite du millieu familial. L'expression orale est donc le reflet d'un milieu, comme les réactions de l'enfant peuvent aussi être des indices précieux pour évaluer son climat psychologique. Les enfants sont des prolongements des parents; il suffit d'écouter ces enfants ou d'observer leurs réactions pour se faire rapidement une idée juste du milieu de vie et aussi une conception nette des facilités ou des difficultés des traitements à venir.

Le dentiste utilise diverses méthodes d'approche — qui ont plus ou moins de succès — pour inciter les enfants à se soumettre à ses soins.

Une *première* façon, celle du délai, qui consiste à remettre le traitement à une date ultérieure pour que l'enfant pleure, en espérant que la prochaine fois — dans trois ou six mois — tout ira mieux. Cette manœuvre peut se répéter plusieurs fois avec des conséquences plus ou moins néfastes pour la denture de l'enfant.

Une *deuxième* méthode, celle du ridicule. Les enfants, habituellement, veulent plaire pour se faire admirer. Ils sont prêts à des concessions pour se faire aimer par après. Cependant, si l'appréhension est trop considérable, la coopération s'établit difficilement. Ridiculiser l'enfant ne change pas sa réaction hostile; cette opposition peut même empirer en superposant le ressentiment à la peur.

Une *troisième* technique, celle de l'imitation. Ici, on permet à l'enfant d'assister à des traitements prodigués à un patient, de préférence, sa mère. L'enfant, quand vient son tour et surtout s'il n'a pas observé d'expression douloureuse ou de mouvement d'appréhension chez la personne qu'il a surveillée, peut être totalement désillusionné, s'il réalise qu'il éprouve de la douleur. Regagner la confiance de cet enfant est une tâche ardue.

La *quatrième* approche est l'entrée en matière verbale qui consiste à dire à l'enfant, par exemple, qu'il ne faut pas avoir peur, sans lui en démontrer concrètement le pourquoi.

La meilleure méthode d'approche est probablement celle du conditionnement ou celle du reconditionnement qui consiste d'abord à évaluer le patient. Il faut découvrir, si c'est le cas, avec l'aide des parents si nécessaire, les motifs de la peur de l'enfant. Une fois le problème solutionné, démontrer au patient que le milieu et les instruments ne comportent pour lui

aucun danger. On peut rapidement lui faire une démonstration ou lui donner des explications simples sur l'emploi de certains instruments de base, en s'assurant que l'enfant comprend le pourquoi, le quand et le comment.

Il est bon d'inclure dans la conversation des sujets qui touchent à la vie individuelle de l'enfant — ses passe-temps, ses fréquentations scolaires, etc.

Les explications sont naturellement suivies de la routine ordinaire des traitements: histoire de cas, prophylaxie, radiographies, anesthésie, etc.

Il vaut mieux, au cours du premier rendez-vous, procéder graduellement: du plus simple au plus compliqué, en ayant bien soin d'expliquer chacune des phases. Habituellement, à la fin du premier rendez-vous, il n'y a plus de problème d'envergure à solutionner.

Ce conditionnement est plus ou moins rapide, selon le climat familial, selon l'âge, selon le degré de compréhension, selon la complexité des problèmes émotionnels.

En résumé, soulignons que l'enfant est un être en formation et que sa croissance et que son apprentissage se font graduellement. Un changement trop brusque qui se produit dans son échafaudage émotionnel peut produire des résultats désastreux.

On contribuera énormément à la santé buccale et dentaire des enfants en faisant connaître aux parents les moyens à prendre pour que leurs enfants acceptent comme un fait ordinaire les visites chez le dentiste.

Université de Montréal,
C.P. 6128

Dr LaHaye

Je me demande s'il n'y a pas plus de dentistes qui ont peur des enfants que d'enfants qui ont peur des dentistes . . . Ces deux craintes ont la même origine: l'ignorance et la peur de l'inconnu.

La clef du succès en pédodontie? — Etre convaincu de son pouvoir à aider les enfants et les aimer. Il vaut mieux refuser de traiter des enfants, si on ne se sent pas capable de les aimer; il est préférable de laisser à d'autres confrères l'initiative des premiers rendez-vous de l'enfant, car ces premiers contacts de l'enfant avec les traitements dentaires peuvent avoir une influence considérable au cours de toute la vie de l'individu.

L'amour a différentes facettes. La fermeté en est une . . . mais il faut l'employer avec délicatesse. Il faut être "Maître chez nous", c'est là une attitude que l'enfant ressent. Le dentiste doit surveiller ses paroles, mais surtout le jeu émotionnel qui s'amorce entre l'enfant et lui-même.

L'atmosphère qui règne dans le cabinet entre le dentiste et l'enfant s'établit en partie dans la collaboration qui s'échange entre le dentiste et les parents. Le dialogue parents-dentiste peut s'avérer plus complexe qu'on ne le croit. Les parents doivent être instruits des conditions d'une bonne santé buccale de leurs enfants pour que ceux-ci se prêtent volontiers aux traitements dentaires. Aussi est-il de mise de donner aux parents certains conseils sous forme d'imprimés sur les idées suivantes:

1. Des radiographies prises à périodes fixes sont essentielles pour surveiller la croissance des dents primaires et permanentes et pour conditionner l'enfant aux traitements. La radiographie des dents se tolère mieux, à une première visite, que l'extraction ou le fraisage d'une dent.

2. La radiographie est suivie d'un examen, d'un plan de traitement, d'une prophylaxie et de soins d'urgence.

3. Les parents, après la première visite, doivent se tenir à l'écart de la salle d'opération; ce n'est qu'à la fin de chaque séance qu'ils sont appelés en consultation pour les visites à venir.

4. Les parents doivent afficher une attitude positive envers leurs enfants; leur dire que le dentiste sera bien gentil, très patient et non "qu'il ne leur fera pas mal."

5. La crainte des enfants a trois origines principales: a) la peur de l'inconnu b) la perception de bruits inédits c) la sensation d'une séparation brusque.

6. L'enfant peut pleurer, malgré toute l'attention et la compréhension apportées par le dentiste: c'est un mode d'expression normal. Il ne faut pas pour cela s'énerver et se formaliser.

7. L'enfant doit être renseigné, à la maison, sur les motifs des traitements dentaires.

Ces considérations préparent les parents et l'enfant au climat dentaire. Aussi est-ce avec des yeux agrandis — non par la crainte — mais par la curiosité, l'envie de connaître, que l'enfant se présentera pour des soins.

Un enfant qui quitte son foyer où tout lui est familier, pour entrer dans un milieu aussi nouveau pour lui que peut être une antichambre de dentiste, ressent un dépaysement normal. Aussi faut-il que la salle d'attente soit aussi accueillante que possible. Cette salle d'attente doit ressembler à "sa" salle de séjour, "son" salon, "son" boudoir. Il faut que la première impression de l'enfant en soit une de sécurité et cette sensation "d'être chez lui" joue en faveur du dentiste. La salle d'attente doit être bien éclairée, propre et surtout sans odeur. Les antichambres transformées en salle de jeux ou en chambre d'enfant — surtout chez un omnipraticien — impressionnent plus les parents que les enfants. Ces décorations sentent l'hypocrisie. La plupart des enfants n'ont pas chez eux de tels décors; ils se sentent davantage dans un milieu étranger.

Cette pièce ne doit pas servir, non plus, à classer des archives. Elle devrait contenir des périodiques récents et un certain nombre destinés aux enfants. Cette salle d'attente ne devrait pas recevoir des bruits émanant des salles d'opération: celles-ci devraient être désonorisées. Quelle influence néfaste sur un patient et surtout chez un enfant que d'entendre des cris ou des pleurs provenant de la salle opératoire!

La secrétaire est la première personne à rencontrer l'enfant. Aussi serait-il de mise que cette personne ne lui rappelle pas des souvenirs désagréables, comme par exemple, l'infirmière, vêtue de blanc, qui lui a injecté son premier vaccin! Il vaudrait mieux que l'assistante soit vêtue d'un costume de teinte pastel et non en blanc.

L'enfant est attaché à sa mère par l'instinct maternel. Aussi, quand l'enfant doit se présenter seul dans le cabinet du dentiste, on peut assister à des déchirements —de la part de l'enfant et de celle de la mère. Si l'enfant s'avance seul, hardiment, tant mieux! Si l'enfant lance des regards éplorés vers sa mère, s'il lui prend la main, s'il s'avance pour de suite reculer, n'insistons pas: faisons entrer sa partenaire avec lui. S'il fallait que le dentiste essuie un échec, il serait seul à en supporter le fardeau. Si la mère est présente, le poids en est partagé.

Il y a de grands avantages, au cours de la première visite, à admettre la mère dans la salle de traitements: un dentiste psychologue peut alors observer les rapports mère-enfant et en tirer des conclusions révélatrices. Au cours du brossage des mains, le dentiste doit écouter . . . écouter . . . écouter. Le temps mis au brossage est en rapport direct avec le succès que le dentiste obtiendra dans ses relations entre parents et enfants. Si l'enfant se soumet sans crainte aux exigences de sa mère . . . aucun problème. Au contraire, si l'enfant n'obéit pas à sa mère, celle-ci sentira son impuissance, son échec . . . Il appartient alors au dentiste d'entrer en scène, comme un arbitre, pour jouer son rôle avec une voix douce, mais ferme et sûre.

Il est à recommander de renseigner le jeune patient sur l'instrumentation la plus usuelle: miroirs, seringues à eau, seringue à air, aspirateur et le familiariser avec des bruits nouveaux, turbine, etc. Le dentiste pourra exécuter son travail plus rapidement quand l'enfant aura été instruit des instruments et des appareils qu'il utilise.

Il est un point important au cours des traitements donnés pour la première fois à un enfant: c'est la première injection. Cette première injection fait du dentiste un "héro" aux yeux des parents et de l'enfant, si les choses marchent bien; mais, hélas, elle ternit pour longtemps son auréole, si tout ne se déroule pas de la meilleure façon.

Il y a des considérations à apporter quand il s'agit d'une injection, surtout à un enfant:

1. Toujours badigeonner la gencive avec un anesthésique topique et attendre que l'effet se soit produit.
2. Faire comprendre à l'enfant la nouvelle sensation que lui procurera cette "eau magique" qui engourdira sa bouche, comme, parfois son pied s'endort par manque de circulation.
3. Utiliser des aiguilles individuelles, de jauge 29-30.
4. Au lieu de pousser l'aiguille dans les tissus, rabattre ceux-ci sur celle-là.
5. En même temps exercer du doigt une pression ailleurs, pour diversifier l'attention de l'enfant.
6. Injecter lentement pour ne pas causer de pression à l'intérieur des tissus.
7. Faire rincer la bouche de l'enfant immédiatement après l'injection.

En règle générale, il faut se comporter avec les jeunes patients comme on aimerait qu'un dentiste se comporte avec nos propres enfants.

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SUMMARY

Treatment of a child in the dental office requires a special psychological approach, because his first experiences with the dentist may have an influence on subsequent behaviour throughout his life. The authors describe ways and means of overcoming the fear of dental treatment in the young patient and, more important, of following sound psychological principles so as not to arouse fear. The basis of these methods is found in the co-operation of the parents.

rapports de cas

Cas de résorption totale de racine après transplantation

par Gérard de Montigny, D.D.S., Montréal, P.Qué.

Histoire de cas. — Enfant de neuf ans, qui, le 26 décembre 1959, au cours d'une partie de hockey, subit l'arrachement total de la centrale et de la latérale supérieures, côté droit. Une heure plus tard, il est conduit chez un pédiâtre qui replace dans les alvéoles les dents qui ont été retrouvées sur la glace. Durant la même journée, il se rend chez son dentiste qui enlève les dents qui tiennent à peine dans leurs alvéoles. La lame osseuse buccale est brisée et la gencive est lacérée. Le dentiste fait un traitement de canal dans chacune des dents (agrandissement des canaux, stérilisation, tiges de gutta-percha); les dents sont remises dans les alvéoles et jointes aux autres dents à l'aide d'un support d'acrylique autopoly-

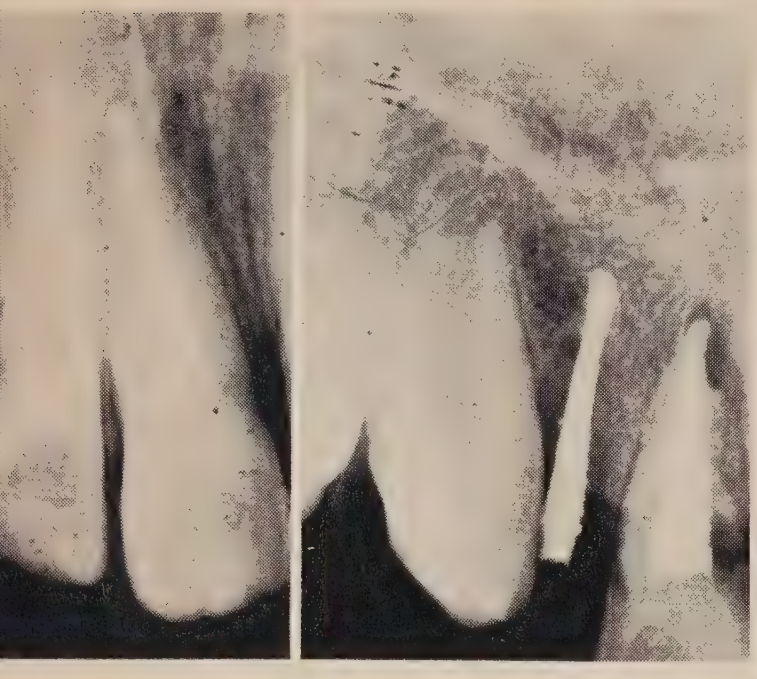

FIGURE 1 Image radiologique (g.) des dents, après le traitement, le 27 décembre 1959.

FIGURE 2 Image radiologique (d.) des dents, le 17 novembre 1961.

mérisant. La guérison se fait normalement: les tissus mous se rattachent aux dents, la gencive guérit par première intention, sans suppuration ou de fistule. Le 21 janvier 1960, le support en acrylique est enlevé et remplacé par une attelle coulée en métal. Les dents sont solides et la gencive saine est fixée aux dents et à l'os.

Ce deuxième appareil est enlevé un mois plus tard; les dents sont normales et solides (Figure 1).

Au printemps de 1961 (soit environ deux ans plus tard), l'enfant, en jouant au football, frappe sa latérale et la couronne de cette dent lui tombe dans la bouche.

Le 17 novembre 1961, le garçon se présente à la clinique d'urgence de la faculté de chirurgie dentaire de l'Université de Montréal pour savoir ce qu'est devenue la racine de la latérale. L'enfant exhibe la couronne de sa latérale.

Examen subjectif. — L'enfant ne se plaint d'aucune douleur; il éprouve seulement l'ennui de n'avoir pas de latérale supérieure, côté droit.

Examen objectif. — Absence de latérale supérieure, côté droit. La centrale, du même côté, est légèrement distalée et elle est quelque peu branlante. A l'examen, on constate la présence d'une substance de couleur rose, dans la gencive, à l'endroit que devrait occuper la latérale.

Examen radiologique.—Absence de racine de latérale; présence, dans l'os, du faisceau de tiges de gutta-percha qui obturaient son canal.
Résorption partielle de la racine de la centrale, à son apex et dans sa partie mésiale (Figure 2).

Diagnostic. — Résorption totale d'une racine de latérale supérieure, côté droit, et maintien dans l'os du gutta-percha qui a servi à l'obturation du canal.
Résorption partielle de la racine de la centrale, à l'apex et à sa face mésiale.

Traitement. — Ablation du gutta-percha, extraction de la centrale supérieure. Remplacement des dents absentes par une prothèse partielle.

Conclusions. — Il s'agit d'un cas rare de résorption totale de racine de dent, après sa transplantation, et tolérance du gutta-percha dans le tissu osseux. L'autre dent, la centrale, était en train de subir le même processus de décalcification.

C.P. 6128

Dent surnuméraire dans les fosses nasales

par Luc Bertrand, D.D.S.,
La Sarre, P.Qué.

FIGURE 1

Histoire de cas. — Dame, 23 ans, référée au cabinet par son médecin, le 1er mars 1962. Excellente santé, constitution normale. A subi une intervention chirurgicale (appendectomie), six semaines auparavant, sous anesthésie générale (intubation).

Examen subjectif. — Elle se plaint de douleur vague dans la région sous-nasale, avec sensation de chatouillement dans la narine gauche; il lui semble que quelque-chose bouge quand elle respire. Aucune céphalée. Elle souffre de ce malaise depuis plusieurs années, mais de façon plus continue depuis l'opération chirurgicale.

Examen objectif. — L'examen de la cavité buccale ne révèle rien d'anormal. Les dents sont présentes, en bon état, propres. Absence de première prémolaire supérieure et de la première molaire supérieure, côté droit (extraction remonte à 1956 ou 1957).

Examen radiologique.—Deux films périapicaux révèlent:

région prémolaire et molaire

— présence d'un léger résidu radiculaire de la lère prémolaire absente, sans présence de raréfaction osseuse;

— sinus semble embrouillé (possibilité de sinusite).

FIGURE 2

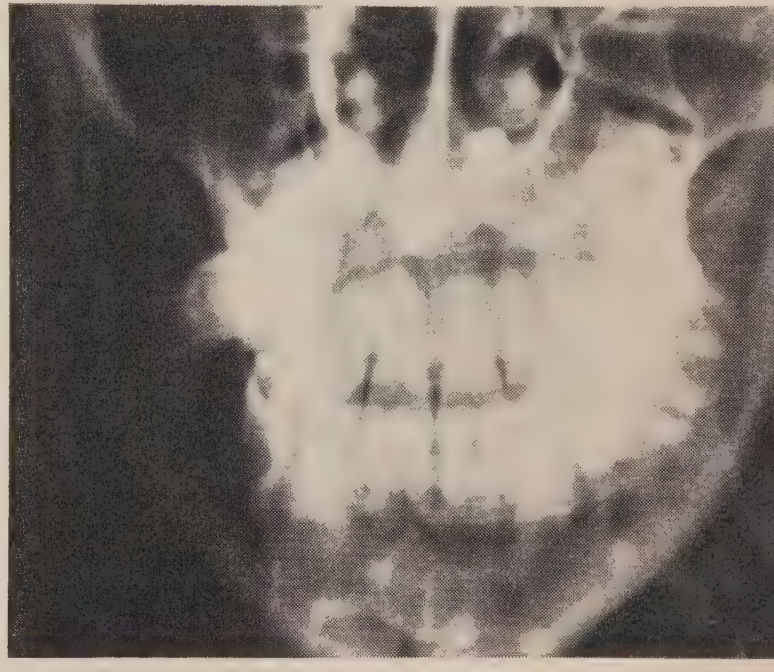

FIGURE 3

FIGURE 4

région centrale

— dents normales;

— présence d'une dent surnuméraire, région sous-nasale (Figure 1).

La patiente est référée à l'hôpital pour films extra-oraux et interprétation par un radiologiste. La patiente sera gardée sous observation; prescription de gouttes nasales (Privine).

Rapport du radiologiste: "Il y a un corps étranger de même densité que les dents, situé dans la fosse nasale gauche. Ce corps mesure environ 10mm. x 4 mm., et semble montrer pulpe et racine. Le sinus maxillaire gauche est plus opaque que le sinus droit et pourrait être le siège de sinusite. Ceci pourrait être confirmé par l'examen spécifique des sinus" (Figures 2 et 3).

Extraction naturelle de la dent surnuméraire. — Le 13 mars, la patiente revient au bureau et déclare "qu'elle a mouché" sa dent, la veille, durant la soirée. Tout symptôme a disparu.

L'examen visuel de la dent montre qu'il s'agit d'une petite dent surnuméraire, de forme de canine temporaire presque sans racine (Figure 4). Patiente revue six mois plus tard n'a rien à signaler. Tout est normal.

Conclusions. — Il semble que le fait pour cette patiente d'avoir été intubée par voie nasale, lors de son opération, a provoqué le délogement de cette dent surnuméraire qui s'est finalement détachée complètement pour être ensuite rejetée hors de l'organisme. Ce fait doit être pour le moins inusité dans les annales dentaires.

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L'Association dentaire canadienne offre à ses membres, en plus d'autres avantages, un plan d'assurance-pension, un plan d'épargne-retraite, un plan d'assurance-hospitalisation, un plan d'assurance-groupe pour la maladie et les accidents et un plan de protection contre les frais fixes du cabinet. On écrit au Plan d'assurance-pension de l'A.D.C., 2249 rue Yonge, Toronto 7, Ontario.

page éditoriale

Les objectifs d'un journal dentaire national

La définition d'un journal, tel que le décrit un dictionnaire se lit comme suit: "Publication périodique qui donne des nouvelles politiques, littéraires, scientifiques" ou "un rapport des évènements publics, des nouvelles et des réalisations, à mesure qu'ils se produisent." Je trouve cette définition incomplète parce qu'un journal qui ne rapporte que les nouvelles de notre profession serait une publication sèche, sans caractère, sans objectifs et sans attrait. A mon avis, un journal professionnel destiné aux dentistes canadiens doit être un organe plus vivant et plus sensible. Il doit être un lien vibrant qui unisse tous les confrères, de quelque région qu'ils soient, dans ce grand pays qu'est le Canada, et qu'ils parlent l'une ou l'autre langue officielle de notre pays. Je me propose au cours de cette causerie de vous décrire les éléments qui façonnent notre Journal et de vous montrer comment l'Association dentaire canadienne tente de satisfaire ce besoin qu'éprouvent les dentistes canadiens pour un organe qui les unisse.

Vous et moi, faisant partie d'une profession qui s'occupe de santé, nous avons des intérêts qui sont communs. Le bien-être du public du Canada doit être la première préoccupation du dentiste canadien. Sur lui reposent le confort et la santé des patients qui se confient à lui. Il doit prodiguer à chacun de ses patients toutes les ressources dont il est capable dans le domaine scientifique, artistique et charitable.

Il a une responsabilité particulière de tenir à la page sa science et son art, d'augmenter et de rafraîchir sans cesse ses connaissances et de prodiguer à ses patients des traitements qui non seulement s'établissent dans un climat de compréhension mutuelle, mais qui doivent être les plus adaptés aux circonstances. Il peut améliorer son rendement en fréquentant les réunions scientifiques des sociétés dentaires et les cours post-scolaires offerts par les facultés. S'il lui est impossible de profiter de ces occasions, il peut avoir recours aux journaux scientifiques pour se tenir au courant des progrès de sa discipline. C'est pourquoi, un bon journal dentaire a comme premier devoir de fournir aux membres d'une profession un choix des meilleurs articles qui traitent de science dentaire. Un source précieuse pour la littérature dentaire se trouve dans les communications qui sont présentées au congrès national annuel de l'Association dentaire canadienne ou devant les membres des diverses sociétés dentaires au travers le pays. Des auteurs soumettent aussi spontanément des articles au Journal et parfois celui-ci sollicite des articles sur des sujets spécifiques auprès d'hommes de science reconnus.

Mais un journal qui est l'organe officiel d'une profession et qui s'en tiendrait à des communications scientifiques ne rendrait pas, de nos jours, un service complet à ses lecteurs. Voici pourquoi.

Le Canada, au milieu du vingtième siècle, est en pleine évolution sociale: sa population qui était en grande partie rurale, campagnarde, s'est changée en une agglomération urbaine, industrialisée. En

*Causerie prononcée devant les étudiants de 1ière année de la Faculté de chirurgie dentaire de l'Université de Montréal, le 11 février 1964.

conséquence, parmi plusieurs autres changements qui se sont produits au sein de la société, l'intérieur de la famille s'est rapetissé. On habite des maisons plus petites ou des conciergeries. Mais, ce qui est plus significatif, le Canadien du vingtième siècle vit dans une plus grande insécurité économique!

Ces modifications sociales ont rendu la famille presque incapable de prendre soin de ses malades à la maison, de défrayer les frais de maladies graves, ou de faire face à des déboursés qu'entraînent des maladies ou des infirmités qui durent longtemps.

L'effet le plus important peut-être de cette évolution sociale se situe au niveau des soins de santé. Le public les envisage avec des conceptions nouvelles: il veut que, non seulement il ait à sa disposition un personnel sanitaire en tout temps pour parer aux inconvénients urgents et même à la mort, mais il veut aussi que ce personnel veille à son maintien en bonne santé. En même temps, l'intérêt de la population s'est éveillé à la nature et aux conséquences des maladies dentaires et cette population veut maintenant recevoir des traitements adéquats. L'accroissement accéléré du nombre des citoyens du Canada, l'appréciation de la valeur de la santé et l'élaboration de systèmes de financement pour ces services de santé ont accentué les demandes pour des soins.

Je n'ai pas à vous dire, j'en suis certain, que nos concitoyens considèrent maintenant les soins de santé si essentiels qu'ils ne peuvent pas s'en passer. Et pourtant, seulement environ un tiers de la population du Canada fait traiter ses dents chaque année. On peut sans beaucoup se tromper dire que les autres douze millions de Canadiens ne veulent plus être classifiés comme des personnes de second ordre quand il s'agit de traitements dentaires. Déjà, il y a des indices que les demandes pour des soins dentaires augmentent considérablement dans ce secteur de notre population; ces gens exigent avec toute la dignité humaine normale de se faire traiter à l'égal de la classe plus privilégiée et elle ne veut pas que cette attention pour elle prenne allure de charité. Cette classe moyenne se rend compte de plus en plus que les services dentaires ne sont pas organisés pour eux. On en a des preuves tous les jours: des politiciens, des chefs de syndicats, des sociologues et plusieurs autres ne se gênent pas pour le dire. On nous fait souvent le reproche suivant: "Votre profession a réalisé des progrès tels dans la science et dans l'art dentaires, qu'ils sont devenus indispensables; et nous, pour qui ces traitements ont été mis au point, nous en venons à la conclusion qu'il est temps de dépenser plus d'argent et de prendre les moyens pour que les services dentaires puissent être mis à la disposition de toutes les classes de la société."

Pour nous, la voie est toute tracée. Il nous faut collaborer avec les élus du peuple; il nous faut développer un esprit de coopération pour aider à la réalisation des désirs légitimes de la population. Pour réaliser cet objectif, il faudra faire appel au maximum à toutes nos facultés d'organisation et d'ingéniosité. Il est donc presque vital que la profession dentaire prenne conscience de ce problème.

Je crois que la profession dentaire, grâce à ses organismes indépendants et autonomes, peut répondre à ces exigences. Les lois de ce pays, en effet, nous confèrent le devoir et la responsabilité de répondre à ces besoins et de satisfaire aux demandes de la société. Mais la profession pourra jouer le rôle qui lui incombe seulement si ses chefs ont le support de tous les membres et si ces membres sont au courant des problèmes. C'est pourquoi en tant qu'individu et en tant que membre d'une profession, nous pouvons ou saboter ou seconder le travail de nos dirigeants dans leur tentative de rendre les soins dentaires à la portée de tous les Canadiens à quelque classe sociale ou économique qu'ils appartiennent. Notre attitude à chacun de nous peut assurer ou détruire l'avenir de la chirurgie dentaire comme profession sanitaire indépendante. C'est là l'ampleur du défi auquel nous devons faire face.

Je crois que la grande lacune contemporaine de la dentisterie canadienne réside

précisément dans l'ignorance que le dentiste entretient au sujet de la mentalité et des aspirations de notre société moderne. Nos facultés dentaires, il est vrai, forment des dentistes d'une qualité technique qui peut se comparer à n'importe quelle autre au monde; mais, nos écoles n'ont pas encore réussi à inculquer à leurs élèves une compréhension rationnelle de ces problèmes politiques et de ces pressions sociales qui s'imposent de plus en plus sur les services de santé d'un état moderne. Jusqu'à ce que toutes les classes de diplômés soient parfaitement informés de cette nouvelle philosophie, il faudra encore compter sur les moyens ordinaires de communication pour mettre les dentistes au courant de ces réalités. C'est donc l'une des tâches primordiales d'un journal dentaire de servir d'instrument de propagande pour forger l'opinion de ses lecteurs. Cette information se transmet par des éditoriaux stimulants et documentés, par des renseignements d'ordre statistique et économique et par des nouvelles qui ont une portée significative émanant de la profession et d'ailleurs. Ce sont là des moyens d'éclairer l'opinion des membres de la profession. Ce genre d'information a autant d'importance, sinon plus, que des communications d'ordre scientifique.

Jusqu'à maintenant, je ne vous ai parlé que du rôle d'un journal professionnel auprès de la collectivité des dentistes. Mais, que vous apporte le Journal, à vous-même personnellement? Que peut-il faire pour chacun d'entre vous?

Eh bien, supposons que vous acquérez des connaissances particulières, supposons que vous mettez au point une nouvelle technique, supposons que vous faites une découverte scientifique. Comment pourrez-vous partager vos réalisations avec les autres 6,000 dentistes de ce pays? C'est évidemment dans les pages du Journal que vous pourrez transmettre votre message. Supposons que vous voulez vendre votre cabinet. Comment pouvez-vous atteindre des acheteurs éventuels? Vous pourrez le faire en insérant une petite annonce dans la section des annonces classifiées du Journal. Supposons que vous n'avez pu visiter l'exposition commerciale qui avait lieu au cours du dernier congrès; on y montrait en effet une nouvelle pièce d'équipement dont parlent tous vos confrères. Où pourrez-vous vous renseigner? Vous trouverez probablement ce que vous cherchez dans les pages de réclame du Journal.

Le Journal est donc pour chacun des dentistes le medium pour transmettre et recevoir des renseignements pratiques au sujet des progrès scientifiques réalisés dans le domaine de la technique et de la clinique. Il lui fournit des données utiles sur l'aspect économique de la chirurgie dentaire. Il peut lire dans ses pages des évènements qui se produisent au sein et en dehors de la profession et qui ont une signification sur l'exercice du dentiste. Sa section de correspondance constitue un forum où le dentiste peut exprimer ses opinions et ses vues personnelles sur tous les sujets. Sa section d'analyse des volumes et celle qui contient des annonces donnent des renseignements sur les nouvelles publications, les nouvelles marchandises et les nouveaux matériaux.

Notre Journal est l'organe officiel de l'Association dentaire canadienne; il est la propriété des 6,000 dentistes qui composent cette Association. Tous les membres de l'Association le reçoivent tous les mois. Les finissants des facultés dentaires et tous les dentistes qui font partie du Corps Dentaire au Canada et à l'étranger en reçoivent aussi des copies. De même, tous ceux qui sont dans l'industrie dentaire et les bibliothèques dentaires du monde entier. Notre Journal, parce qu'il est rédigé en anglais et en français, peut être lu et compris presque dans toutes les régions du globe.

Le Journal se compose tous les mois de sections régulières: des articles originaux, des revues d'articles publiés dans d'autres journaux, des rapports de cas, des annotations de recherches, des résumés, des éditoriaux, des rapports des bureaux, des comités et des conseils de l'Association dentaire canadienne, des analyses de volumes; de la correspondance, des an-

nonces de congrès à venir et des nouvelles de la chirurgie dentaire au Canada et à l'étranger. Ce système d'organisation est nécessaire parce que, de mois en mois, le Journal joue un grand nombre de rôles divers qu'il ne peut négliger, car c'est la fonction d'un journal dentaire d'ordre général de prodiguer un service complet à ses annonceurs et à ses lecteurs. Notre publication nationale a donc plusieurs rôles à jouer: c'est pourquoi, à cause des intérêts multiples de ses lecteurs, son contenu doit être varié. Le Journal s'efforce de répondre aux besoins et aux intérêts d'une profession dispersée dans une multitude de situations différentes, comme c'est le cas de nos jours de la profession dentaire canadienne. Car les dentistes de notre pays se trouvent partout — dans les coins reculés du nord et dans les métropoles du sud, dans des laboratoires de recherches, dans des unités sanitaires de campagne, dans des services dentaires d'hôpitaux; ils exercent aussi bien comme spécialistes dans des grands centres que comme omnipraticiens dans des régions éloignées. Le Journal s'efforce donc de donner à chacun des dentistes, peu importe où ils se trouvent et peu importe quels sont leurs intérêts, qu'ils soient de langue française ou de langue anglaise, une part raisonnable de son texte.

A l'heure actuelle, le Journal a plus ou moins des sections distinctes anglaise et française; il consacre environ un quart de ses pages au texte français. L'expression "plus ou moins" mérite des explications. Chaque mois, seize pages sont réservées pour des articles, des résumés, des éditoriaux et des nouvelles rédigés en langue française. Ces seize pages constituent la "section française." Dans d'autres pages, par ailleurs, on y trouve de l'anglais et du français entremêlés. Par exemple, les sections In Memoriam, les Lettres au rédacteur et d'autre matériel sont publiés dans les deux langues. On trouve dans une formule bilingue (1) les rapports annuels sur les revenus moyens des dentistes canadiens, les statistiques sur le nombre et la répartition des dentistes au Canada, le nombre des étudiants en chirurgie dentaire et la fluoration — Ces rapports proviennent tous du Bureau des recherches économiques de l'Association dentaire canadienne. (2) Les bilans trimestriels du Plan d'épargne - retraite établie par l'Association dentaire canadienne pour ses membres. (3) Le supplément du programme préliminaire du congrès annuel de l'Association. Ces textes sont insérés dans le Journal selon les besoins de l'époque de l'année.

Les rédacteurs souhaitent ardemment — il en va de même, sans doute, pour les lecteurs — que le Journal, dès qu'il aura suffisamment de textes dignes d'être publiés, augmente le nombre de ses pages. Mais sur cette question, le Journal, comme tout autre périodique, fait face à des limites qui, sans qu'elles soient apparentes, n'en sont pas moins rigides: c'est d'établir une proportion raisonnable entre le texte même du journal et les pages d'annonce. Cette proportion se base sur des facteurs économiques qui signifient un revenu ou un déficit pour l'Association dentaire canadienne.

En d'autres mots, nous réalisons la valeur d'annonces honnêtes et sérieuses non pas seulement comme une source de revenus pour le Journal ou comme medium de réclame pour des marchandises, mais aussi comme medium d'information pour le praticien. Cet aspect de la réclame dans notre Journal a son importance, surtout quand on adhère au code des standards de l'annonce. Tout produit et les termes utilisés dans la réclame, pour être annoncé dans le Journal, doit répondre aux conditions de ce code. On sait par expérience que cette politique nous a mérité le respect des annonceurs et nous a permis de maintenir un niveau de réclame qui se compare avec la qualité de la teneur du Journal.

J'espère que vous admettrez que notre Journal n'est pas statique; il ne dort pas sur ses lauriers. Il vous prodigue des services à vous qui êtes ses lecteurs et ses propriétaires. C'est devenu un cliché de dire que la valeur d'un journal dépend de la collaboration que nous lui apportons. Le bénéfice réel que nous en tirons vient

de notre participation individuelle. Voici, en terminant, trois simples suggestions pour utiliser à fond le Journal. Si vous avez fait quelque étude spéciale dans un domaine scientifique, écrivez un article pour le Journal. Si vous voulez savoir ce qui se passe dans le domaine dentaire, ici et à l'étranger, lisez le Journal. Si vous vous intéressez aux problèmes de la chirurgie dentaire et si vous voulez faire connaître vos idées, écrivez une lettre au Journal.

Notre Journal sera toujours ce que ses lecteurs voudront qu'il soit. En un mot, le Journal est le reflet de la dentisterie canadienne, l'image que s'en fait le reste du monde.

F.H.C.

les actualités dentaires

L'Association

CONFÉRENCE DES SECRÉTAIRES PROVINCIAUX

Les secrétaires des Collèges provinciaux ont tenu leur quatrième conférence annuelle au Collège des chirurgiens dentistes de la province de Québec, à Montréal, les 2, 3 et 4 décembre dernier. Une journée de la conférence a été consacrée à l'étude de la cytologie exfoliative à laquelle ont aussi assisté des représentants des facultés dentaires.

Chacun des secrétaires ont fait part des activités de leur organisme respectif et leurs rapports ont suscité des discussions qui ont profité à tous ceux qui étaient présents.

Les sujets les plus importants qui ont été l'objet de discussions furent les suivants: le Bureau national d'examen dentaire (en présence du docteur H. N. Beach, secrétaire de cet organisme); la législation (en présence du docteur A. H. Crownson, président du conseil de la législation de l'A.D.C.); les échelles d'honoraires; l'exercice de groupe; les relations interprovinciales; les corporations de services dentaires.

Les secrétaires suivants ont assisté à ces délibérations: G. M. Dewis, Halifax, président de la réunion; R. V. Winsor, St-Jean, Terre-Neuve; G. D. Barrett, Charlottetown; R. F. Sansom, St-Jean, Nouveau-Brunswick; R. M. LeBlanc, Montréal; W. J. Dunn, Toronto; W. G. Campbell, Winnipeg; F. R. Smith, Saskatoon; G. E. Decker, Edmonton; W. R. Upton, Vancouver. Le docteur Don W. Gullett, secrétaire de l'Association dentaire canadienne, et quelques membres du personnel du secrétariat de l'A.D.C. assistaient aussi à cette assemblée.

ASSEMBLÉE DU COMITÉ DES SERVICES DENTAIRES

Le comité des services dentaires de l'Association dentaire canadienne s'est réuni au secrétariat de l'Association, à Toronto, les 9 et 10 décembre dernier. Des délégués de toutes les parties du Canada assistaient à cette assemblée. Des rapports émanant des comités provinciaux de services dentaires y ont été présentés et discutés en détail. Le comité a revisé ses déclarations de politique au sujet de l'assurance-santé et des plans de pré-paiements; ces déclarations seront soumises pour approbation au Conseil des Gouverneurs quand celui-ci se réunira en juin prochain.

Le sous-comité des honoraires a fait part de son travail dans l'élaboration d'une valeur relative d'une échelle d'honoraires et on l'a prié de rédiger un modèle de liste complète d'honoraires.

Le comité a considéré les plans dentaires qu'offrent sept compagnies d'assurances et la situation présente des plans médicaux dans les provinces. Il a souligné que la profession dentaire doit se tenir au courant des amendements apportés à la législation au sujet des services médicaux, car ces initiatives peuvent toucher des services qui

pourraient être prodigués par des dentistes et créer des précédents qui pourraient être invoqués lors de l'élaboration d'autres plans de santé dans l'avenir.

En plus des membres du comité, les membres suivants ont assisté à l'assemblée: Steven Yaholnitsky, président du comité de Saskatchewan; R. D. Leuty, représentant la Société d'orthodontie d'Ontario; H. M. Jolley, président du comité d'Ontario; Walter Pressey, membre du sous-comité des honoraires; P. G. Anderson, aviseur du comité; et des membres du personnel du secrétariat de l'A.D.C. Les membres du comité qui étaient présents: W. G. McIntosh, président; Louis Bernier, Québec; W. J. Dunn, et R. A. Clappison, Toronto; B. M. MacKenzie, Edmonton; H. G. Pettapiece, Parkville, C.-B.; et H. J. MacConnachie, Halifax.

Le Canada

ON A BESOIN D'UNE FACULTÉ DENTAIRE EN SASKATCHEWAN

Le Saskatoon *Star-Phoenix* publiait, le 3 décembre dernier, l'éditorial suivant pour souligner la nécessité urgente d'établir une faculté dentaire à l'Université de Saskatchewan:

> Le besoin de fonder une faculté dentaire à l'Université de Saskatchewan est tel qu'il est difficile de trouver des raisons pour lesquelles le Collège des chirurgiens dentistes de Saskatchewan n'en a pas pris l'initiative depuis longtemps déjà. Le mémoire soumis récemment par le Collège au Sénat de l'Université contient des arguments tellement évidents que le comité nommé pour étudier la question ne pourra pas les ignorer.
>
> En résumé, la province a besoin d'un plus grand nombre de dentistes et on ne pourra pas trouver ces dentistes à moins que la Saskatchewan commence bientôt à "se les former." La population, depuis 1952, a augmenté de 11.2 pour cent et le nombre des dentistes a baissé de 11.5 pour cent.
>
> Il suffit d'un moment pour calculer que chaque dentiste devrait absorber dans sa clientèle 30 pour cent de plus de patients. On peut facilement prouver qu'une proportion de ce 30 pour cent supplémentaire n'a pas les soins qu'elle devrait recevoir ou les a trop tard, en consultant les longues listes d'attente que la moyenne des dentistes doivent actuellement affronter.
>
> A l'heure présente, en Saskatchewan, les jeunes gens qui veulent devenir dentistes doivent faire leurs études en dehors de la province et n'y pas revenir — ou choisir une autre carrière. Cette situation ne peut pas durer plus longtemps, car une province se cause un tort immense en ne disposant pas des soins dentaires dont elle a besoin.
>
> Une faculté dentaire, même si on en fonde une immédiatement, ne pourra réellement fonctionner qu'à une époque déjà trop tardive. Il faudra plusieurs années avant que les premiers diplômés soient prêts à améliorer la santé dentaire de notre population.

ON SE PORTE À LA DÉFENSE D'UN RELEVÉ AU SUJET DES DENTS

Selon des communiqués de journaux, la Voix des Femmes et un dentiste se sont élevés contre une prétention de l'Honorable Judy La Marsh qui a déclaré: "Qu'une boîte remplie de dents, sans qu'on en connaisse la provenance, ne donne pas grand'chose." Le Ministre de la santé nationale et du bien-être social se rapportait à la campagne de collection de dents patronisée par la Voix des Femmes pour des recherches qu'effectue le docteur Murray Hunt, de la faculté dentaire de l'Université de Toronto, sur la teneur en strontium 90 dans les dents. Le docteur Hunt a plus tard fait connaître au public les mesures qui sont prises pour établir l'identification précise de ces dents primaires utilisées dans ses recherches.

Le docteur Hunt, qui fait partie du conseil des recherches de l'A.D.C., a spécifié que les propos du Ministre sont "plutôt déplorables". La présidente de la Voix des Femmes a déclaré que Mlle La Marsh "ne connaissait pas ce dont elle parlait," quand elle a critiqué cette campagne pour amasser des dents. (Le docteur Hunt a fait rapport au sujet de ses recherches, l'an dernier, au congrès de l'Association dentaire canadienne et il publiera en temps opportun le résultat de ses recherches.)

LE SÉNAT S'INTÉRESSE À LA SANTÉ DES VIEILLARDS

Le Sénat a formé un comité spécial "pour étudier le problème du bien-être des vieillards et des personnes qui vieillissent." Le sénateur David Croll est président de ce comité.

L'Association dentaire canadienne est un des organismes qui seront appelés à sou-

mettre un mémoire au comité. Le comité des services auxiliaires, à sa dernière réunion, a discuté cette invitation; il a rédigé un questionnaire pour obtenir des organismes dentaires provinciaux certains renseignements dans ce domaine. On croit que ces renseignements formeront la base d'un mémoire qui sera soumis au début de 1964 et qui contiendra des commentaires et des recommandations à ce sujet.

LE DOCTEUR CONNOR EST NOMMÉ À OTTAWA; LE DOCTEUR BROWN PREND SA RETRAITE

Le docteur Ralph Connor est devenu le nouveau directeur de la division dentaire du Ministère de la santé nationale et du bien-être social. Le docteur Harry K. Brown, qui faisait partie du Ministère depuis 1947, s'est retiré en décembre et il prendra officiellement sa retraite en avril prochain.

Le docteur Connor occupe ce poste à Ottawa après avoir été, durant cinq ans, directeur des services dentaires du Ministère de santé de la province de Manitoba. Avant d'être nommé à Winnipeg, le docteur Connor fut directeur régional de l'hygiène dentaire publique du district de Niagara, en Ontario. Il a travaillé comme hygiéniste depuis qu'il a reçu son diplôme d'hygiéniste dentaire à l'Université de Toronto, en 1949.

Avant cela, il avait exercé sa profession, comme omnipraticien, à St-Thomas, Ontario. Le docteur Brown est connu internationalement pour ses recherches sur l'effet du fluor sur la carie dentaire menées à Brantford-Stratford-Sarnia. Il obtint son diplôme de dentiste à l'Université d'Alberta en 1933. Il fit partie de la législature d'Alberta de 1935 à 1940. Il servit dans le corps dentaire durant les deux guerres, laissant l'armée avec le grade de lieutenant-colonel. Le docteur Brown, avant d'entrer au service du gouvernement fédéral, reçut son diplôme d'hygiéniste dentaire à l'Université de Toronto, en 1946.

LES MÉDECINS SONT LES PLUS GROS CONTRIBUABLES

Les médecins, selon un journal qui rapporte les statistiques les plus récentes au sujet de l'impôt sur le revenu, sont les contribuables qui ont les revenus les plus considérables, c.-à-d. une moyenne de $17,006.

C'est la quatrième année consécutive que les médecins et les chirurgiens occupent le premier rang. Les avocats et les notaires, qui étaient en troisième place en 1961, sont montés en deuxième avec une moyenne de $15,718. Les ingénieurs et les architectes suivent avec $14,692. Les dentistes suivent en quatrième rang avec une moyenne de revenus de $12,337. Les comptables sont les suivants avec $11,267.

Les autres groupes ont eu, en 1961, les revenus suivants: spéculateurs, $6,320; artistes, $5,862; vendeurs, $5,812 et les commerçants, $5,278. Le groupe le plus nombreux des contribuables — 3,947,599 personnes classifiées comme "employés" — a eu une moyenne de revenus de $4,132. Le nombre des contribuables en 1961 s'est chiffré à 4,507,767; il avait des revenus moyens de $4,348 et il a payé une moyenne de $424 d'impôt.

CONGRÈS ATLANTIQUE À VENIR

Le congrès dentaire des provinces de l'Atlantique aura lieu à Charlottetown du 5 au 8 juillet 1964. Des célébrations spéciales auront lieu sur l'Ile pour commémorer le centenaire des premières assemblées qui ont amené la Confédération du Canada, en 1867.

EXPO-SCIENCES EN AVRIL

Le conseil de l'Expo-Sciences canadienne a annoncé que la troisième Expo-Sciences nationale aura lieu à l'Université de Montréal, les 24 et 25 avril. L'ACFAS (l'Association canadienne-française pour l'avancement des sciences) agira comme co-patron de ce concours ouvert aux garçons et aux filles des écoles secondaires; son président sera M. Marcel Bourgon, professeur de chimie à l'Université de Montréal.

Les gagnants des prix nationaux seront choisis parmi un garçon et une fille qui exposeront à cette occasion et qui se seront classés parmi les premiers aux expositions régionales organisées par tout le Canada.

A la seconde Expo-Sciences nationale, tenue à Toronto, en mai dernier, 53 collégiens et collégiennes, gagnants à des expositions régionales ont vu leurs travaux jugés d'après deux catégories: biologie et physique. On décernera encore des prix dans ces deux catégories. En plus, les deux gagnants, un garçon et une fille, auront l'avantage d'être délégués au International Youth Science Fortnight, qui aura lieu à Londres, du 27 juillet au 8 août 1964. Ce sera la troisième année consécutive que le Canada sera représenté au Fortnight par les gagnants de l'Expo-Sciences canadienne.

"La réaction des collégiens, de leurs parents et de leurs maîtres à cette initiative a démontré d'une façon sensationnelle que la population s'intéresse davantage aux questions scientifiques", a déclaré M. H. A. Mullins, président du conseil d'Expo-Sciences.

"Cet intérêt sans cesse grandissant ne peut que bénéficier au développement personnel des jeunes gens. De plus, elle fournit une occasion unique de faire reconnaître adéquatement le travail des institutions et des professeurs. Nous sommes confiants que l'intérêt manifesté pour l'Expo-Sciences se développera dans toutes les provinces et que les gagnants continueront à contribuer aux réalisations scientifiques du Canada". L'Association dentaire canadienne est un des organismes qui soutiennent l'Expo-Sciences.

UNE ENQUÊTE FAITE À LA TÉLÉVISION CLASSE LA CHIRURGIE DENTAIRE EN SEPTIÈME PLACE COMME CHOIX DE CARRIÈRE

Des personnes, qui ont pris part à une enquête sur le choix d'une carrière au programme des affaires publiques de la chaîne de télévision CTV, ont placé la chirurgie dentaire en septième place. Au-delà de 1,000 Canadiens résidant dans 10 villes différentes ont pris part à cette enquête menée par Telepoll.

Voici, selon le *Financial Post*, la compilation des réponses faites par la McDonald Research Ltd. — quelles sont les trois professions que vous désireriez voir choisir par votre enfant: professeur 46.7 (pour cent), dentiste 26.1, artiste 4.5, médecin 56.8, athlète professionnel 6.7, avocat 39.9, ingénieur 42.0, homme d'affaires 27.2, prêtre 11.0, savant 32.1 pour cent.

Fluoration

ICI ON VOTE EN FAVEUR DE LA FLUORATION, LÀ ON S'Y OPPOSE

Plusieurs référendums ont été tenus récemment dans certaines villes canadiennes au sujet de la fluoration.

A Thornbury, en Ontario, la population a voté contre la fluoration à raison de 304-100. Les citoyens de Yorkton, en Saskatchewan, ont aussi voté contre cette mesure, 1,827-1,008. A Blind River, Ontario, on s'est prononcé en faveur par une majorité écrasante: 783-262. A Port Arthur, des voteurs se chiffrant à 40 pour cent de la population se sont encore prononcé contre la fluoration: 5,782-3,408. On rapporte qu'en Colombie britannique, Williams Lake a approuvé cette mesure et qu'à Quesnel, on l'a rejetée. Dans la ville de Carrot River, en Saskatchewan, on a cessé de fluorer l'eau, mais non pas parce que le public s'y opposait. On a trouvé récemment une nouvelle source d'approvisionnement en eau et l'eau de ce puits contient du fluor dans la proportion de 2 ppm.

LE CONSEIL DE SANTÉ ENDOSSE LA FLUORATION

Le Dominion Council of Health a endossé la fluoration de l'eau des aqueducs comme moyen de prévenir la carie dentaire. Il a ratifié à l'unanimité la déclaration suivante:

> Le Dominion Council of Health a de nouveau étudié la question de la fluoration de l'eau des aqueducs et il endosse unanimement les résolutions adoptées à ce sujet par l'Association dentaire canadienne et par l'Association canadienne d'hygiène publique.

Le conseil se compose du sous-ministre de la Santé nationale et du bien-être social, des sous-ministres de la santé des provinces et d'autres personnes.

Les Facultés dentaires

LA COLOMBIE BRITANNIQUE SE DONNE UNE FACULTÉ DE 2 MILLIONS DE DOLLARS

Le docteur John B. Macdonald, président de l'Université de Colombie britannique, a fait part que son Université se propose de construire un édifice pour abriter sa faculté dentaire. On construira un immeuble de quelques deux millions et il contiendra des locaux pour l'enseignement, la recherche et les cliniques. Cet édifice fera partie du Centre des sciences de santé, qui comprendra éventuellement un hôpital universitaire; il aura 67,000 pieds carrés distribués dans trois étages avec possibilité d'ajouter deux autres étages. On s'attend à ce qu'il soit terminé à l'automne de 1965. On a demandé des soumissions au début de 1964.

Le nouvel édifice recevra un petit nombre d'élèves pour la première année.

HYGIÉNISTE DE HALIFAX ÉLUE PRÉSIDENTE

Mme Janet Burnham, de Halifax, vient d'être élue présidente de l'Association américaine des hygiénistes dentaires. Elle est directrice de l'Ecole des hygiénistes dentaires de l'Université Dalhousie.

The Canadian Dental Association

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Hazards of complete mouth reconstruction

E. R. Ambrose, D.D.S., Montreal, P. Quebec*

Methods of tooth restoration are described along with the hazards that accompany the wrong choice of treatment or materials. There is no justification for indiscriminate reduction of sound external tooth contours simply because the available cutting tools make this an easy procedure.

Early in his professional career a dentist must decide whether to render limited emergency-type services to large numbers of patients or whether to provide comprehensive care for a reasonable number of patients. Most practitioners should work toward the latter as the more satisfying to patient and dentist alike. The goal then is to restore patients' mouths to a state of health, normal function, and attractive appearance, and to maintain this state for as long as possible. A choice of treatment methods may be available to accomplish this aim. Selection of the proper course for a given patient is influenced by that patient's health, temperament, age and attitude toward dental health, as well as by the dentist's per-

*Chairman, Department of Operative Dentistry, McGill University, Montreal.

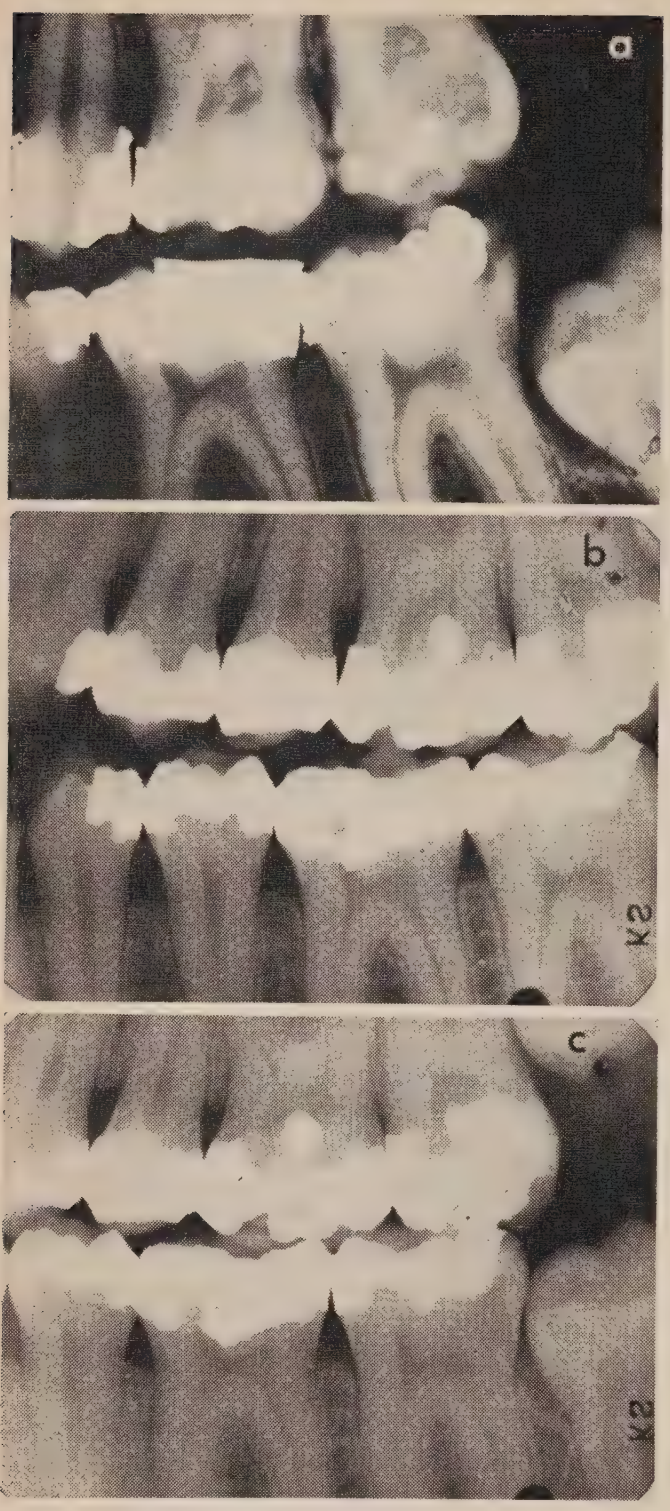


FIGURE 1 (a) Bitewing radiograph with evidence of carious lesions and restorations with marginal excesses. (b, c) Bitewing radiographs following treatment.

sonality, interest, motivation, ability to manage patients and professional reputation. Economic considerations cannot be divorced from the final decision. But ultimately, each dentist must advocate those procedures that will best meet the patient's total health needs; procedures that

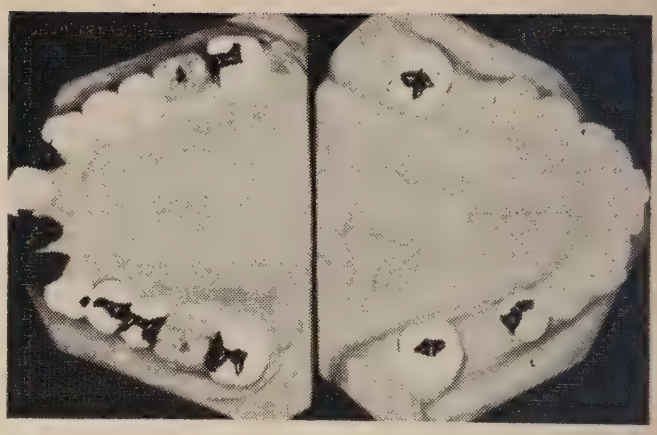


FIGURE 2 Models from a patient requiring replacement of mandibular posterior teeth. Prophylaxis and occlusal correction have been completed and the patient has received home care directions.

are familiar to him and that he can carry out successfully with the patient's cooperation.

Our greatest shortcoming during the early years of general practice is our inability to assess completely the tissues surrounding the hard structures of the mouth and associated occlusal problems. Many restorative failures are directly related to pre-existing pathological conditions in the supporting tissues. On the other hand, inadequate restorative treatment is a definite menace to the periodontium (Figure 1).

One must develop an awareness for the relationship between hard and soft tissues and learn how to cope with the periodontal disturbances present in many patients. There is very little sense completing careful restorative operations if the supporting tissues are not considered and brought to a proper state of health before, or as part of, the restorative treatment.

Preliminary procedures

Prior to undertaking major restorative treatment of any kind each patient should receive:

1. Thorough prophylaxis and necessary periodontal treatment.

2. Removal of all local irritants associated with previous restorations, such as open contacts, marginal excesses, and so forth.

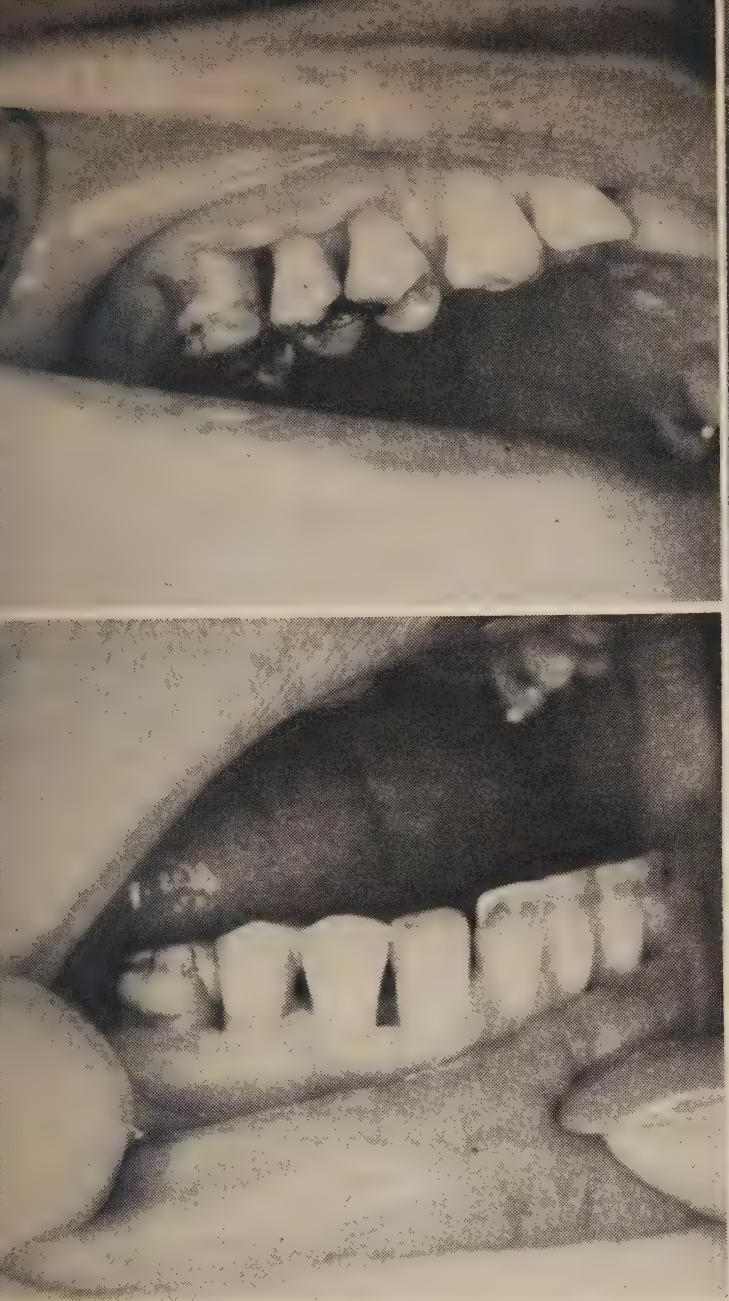


FIGURE 3 Patient requiring temporary intracoronal splinting to help stabilize centric occlusion and as an adjunct to periodontal surgery.

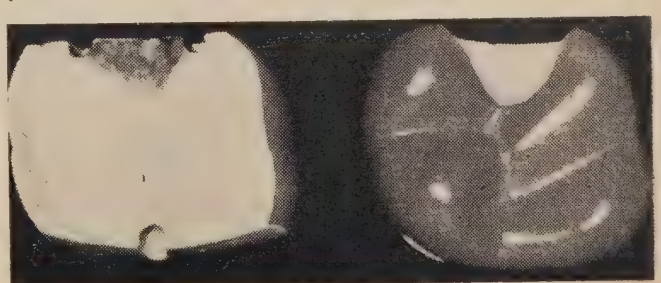
FIGURE 4 Temporary intracoronal splints. Same patient as in Figure 3.

3. Evaluation of centric relation and adjustment of centric occlusion to produce the maximum number of simultaneous contacts. Extruded teeth should be reduced and re-shaped and, if necessary, restored. The patient should be aware of an even distribution of definite centric contacts on the posterior teeth present. He should feel light contact anteriorly. Protrusive and lateral movements should be observed and only adjusted to produce a distribution of guides and contacts where indicated. These procedures are particularly important when we are contemplating extensive restorative treatment.

4. Careful instruction in oral hygiene procedures that will suit and benefit the particular patient. These directions must be carried out daily. Early response will indicate the type of co-operation one may anticipate. Patients should be made aware that the results of their efforts are clearly visible (Figure 2).

5. Attention to urgent problems, including intracoronal or extracoronal tem-

FIGURE 5 Models illustrating removal of necessary tooth structure to expose the carious lesion and placement of retentive grooves.



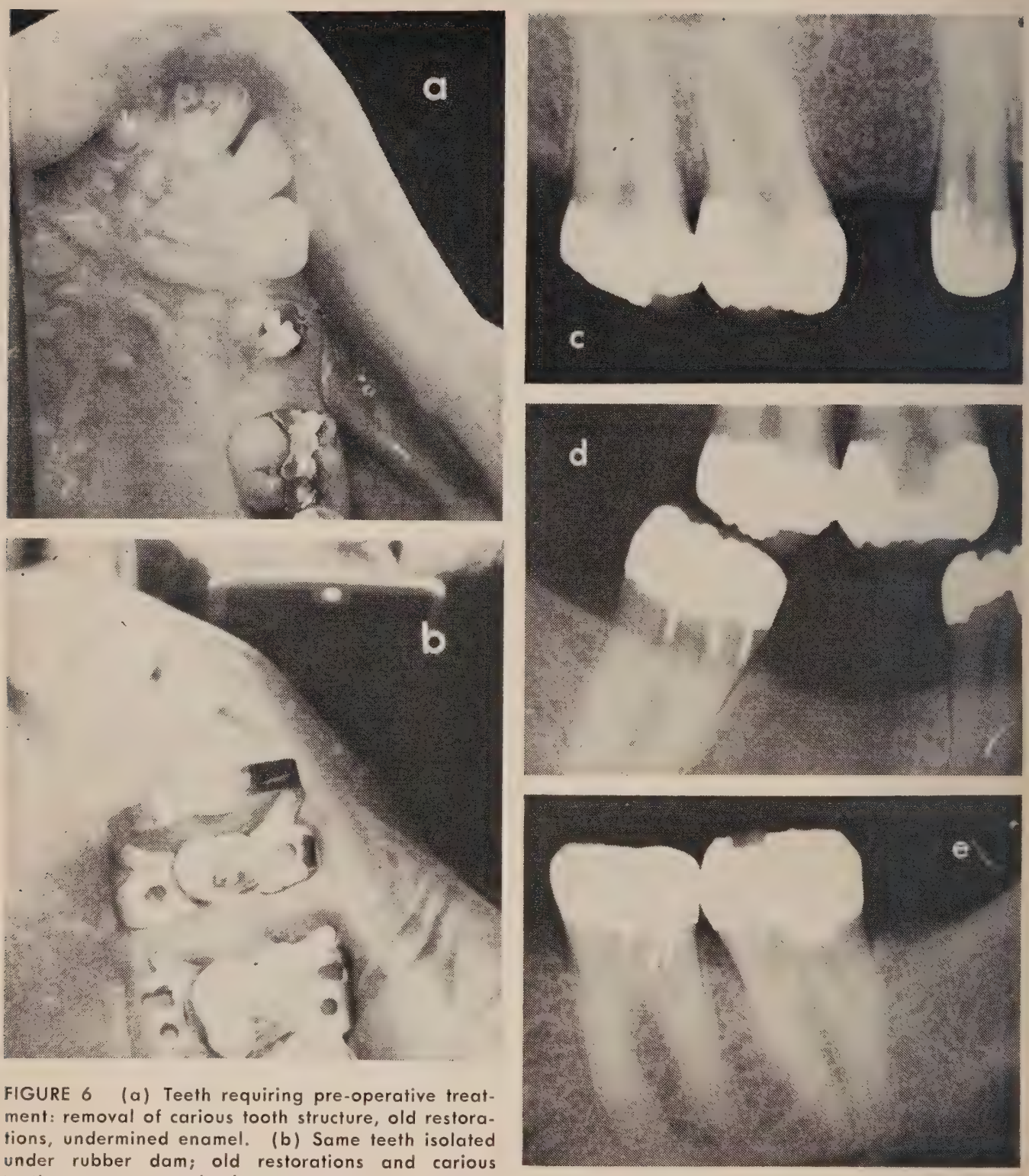


FIGURE 6 (a) Teeth requiring pre-operative treatment: removal of carious tooth structure, old restorations, undermined enamel. (b) Same teeth isolated under rubber dam; old restorations and carious tooth structure completely removed. (c-e) Radiographs showing completed pre-operative treatment. An amalgam base was used over suitable pulp protection. Threaded stainless steel wire was used for extra retention.

porary splinting if necessary. The latter must often precede periodontal surgery or any attempt to correct gross occlusal disharmony (Figure 3).

Most patients should be dismissed at this stage. There ensues a brief time interval during which the dentist can evaluate the degree of home care co-operation and observe the results of preliminary treatment. A patient who has been acquainted with his needs and who agrees to a proposed treatment plan must accept

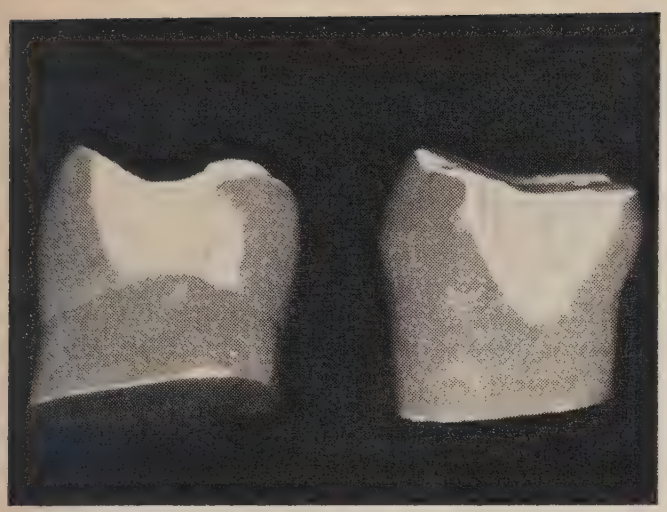


FIGURE 7 Models illustrating the modified or concave slice as compared to a bevelled box preparation. Note the gingival extension of this cupped-out type of slice and the conservation of tooth contour.

FIGURE 8 Model illustrating common mesio-lingual inclination of a molar distal to an edentulous area.

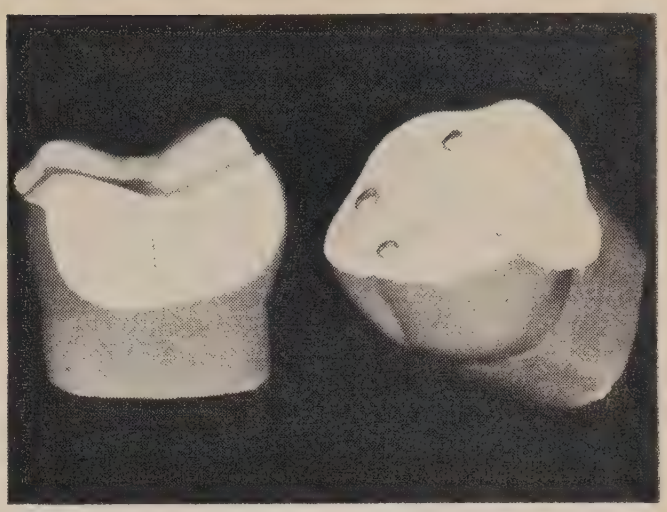


FIGURE 9 A modified slice and an onlay outline in conjunction with grooves and pins often satisfies retention requirements when an inclined tooth serves as a bridge abutment.

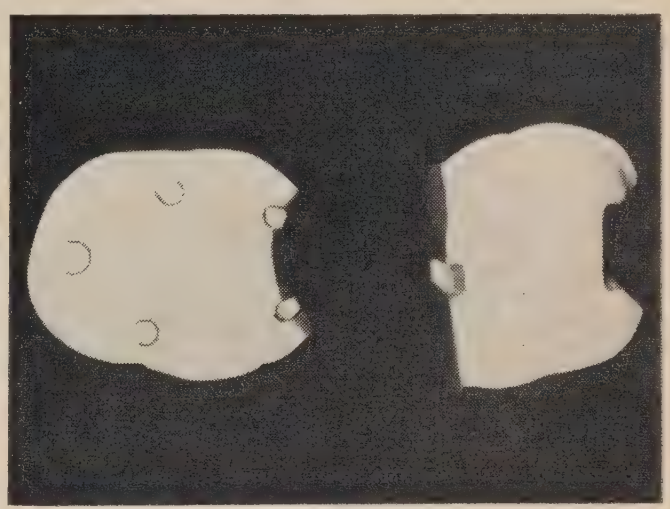


FIGURE 10 Comparison between the disk type slice and the cupped-out slice. Note the retention available in the preparation on the left by the use of three occlusal pins and proximal locking grooves.

his share of responsibility for the outcome. Where lack of understanding and patient co-operation are encountered extensive and costly treatment is of questionable value (Figure 4).

Preparation of teeth

Pre-operative Treatment.—Our first concern is for teeth with extensive restorations and vital or non-vital pulps. These restorations must be evaluated and removed or left as necessary. The best time to do this is while the contours of the crown remain intact. This facilitates rubber dam isolation of the tooth for purposes of close inspection.

The removal of carious tooth structure, old restorations and badly undermined enamel should be accomplished without cutting through the remaining sound tooth tissue except where access dictates such a procedure (Figure 5).

All excavated areas are provided with some retention and restored flush with the cavosurface using amalgam, alloy cement, or zinc phosphate cement, preceded by suitable pulp protection. Amal-

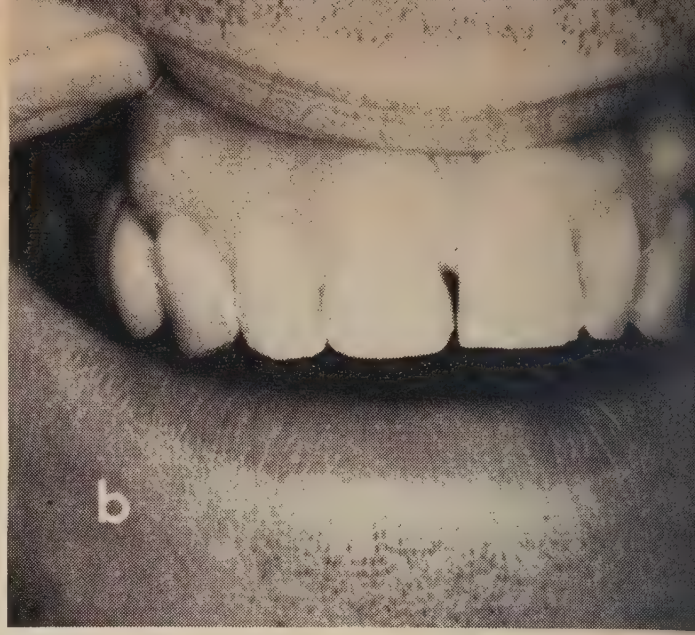


FIGURE 11 (a) Porcelain jacket crown preparation with strand of cotton and zinc oxide-eugenol pack in place on the shoulder prior to inserting the temporary crown. (b) Temporary crown in place two weeks later. (c) Temporary crown supporting cotton and zinc oxide-eugenol pack removed. Note the healthy state of the soft tissues and the ease with which the porcelain jacket can now be cemented.

gam is insoluble and is one of the best sealing materials. It is safer than the other materials as a base for castings that will follow. This is particularly true where an interval of time occurs before beginning preparation for castings (Figure 6).

Outline.—When the base has been constructed attention is directed to the outline form of the proposed castings. Minimal reduction of the external tooth surface and of the previously restored areas is preferable to extensive intracoronal cutting. This permits (a) an extracoronal outline encompassing all the cement or amalgam and finishing on sound tooth structure, (b) reduction of the occlusal surfaces in sloping planes that follow the general anatomical outline and allow for strength, wear and a physiological food table, and (c) sensible preparation of proximal surfaces according to contour, clinical crown length and involvement of these surfaces by previous caries or restoration. The use of a separating or diamond disk is contra-indicated for complete preparation of many proximal surfaces. A concave or modified slice is much more conservative and can reach much further apically with less destruction of tooth form (Figure 7). [The original concepts and models for Figures 7, 9 and 10 were developed by R. T. Lamb of Montreal.]

Inclined teeth, teeth with ovoid forms or concave areas at the cemento-enamel junction, and teeth with interproximal caries involving the root are approached with flame or torpedo-shaped diamond instruments. Their proximal surfaces are cupped out rather than sliced away (Figures 8, 9).

Full or acrylic veneer crown preparations should be avoided. If the buccal surface is relatively healthy it should be left intact. Class V lesions, if of moderate extent, are best treated separately. Restoration of these cavities should precede other operative procedures. Sound enamel can be left intact between such a restoration and the occlusal cavosurface finish line of the major preparation. Where this is impractical we must, of

course, employ three-quarter or full crown coverage.

A shoed cusp-onlay outline combined with intracoronal retention prevents the occurrence of gingival irritation which is often consequent to indiscriminate reduction of buccal and lingual contours. This design provides a splinting effect for the buccal and lingual cusps and also yields visible margins to which a casting may be accurately adapted and finished. A smooth self-cleansing finish line at cusp height or just beyond is preferable to the sub gingival margin of a full crown or the intracoronal irregular finish line of an inlay. The ease of securing an impression of conservative preparations with elastic impression materials is an added consideration (Figure 10). The objective is a smooth flowing cavosurface finish line that embodies extension for prevention, yet preserves sound tooth contour as far as possible. At this stage the outlines are complete on the abutment teeth and the reduction of all axial walls has been considered in terms of the intended path of insertion.

Retentive Forms. — Suitable retention is achieved by means of boxes, pins, grooves, locking grooves, sub-pulpal extensions or friction with the axial walls of a full crown. The choice is immaterial as long as the remaining sound tooth structure yields sufficient individual parallel retentive units. Accurate elastic impression materials facilitate the reproduction of any desired variation in retention form in the abutments. We select the forms that provide maximum retention with minimum removal of sound tooth structure. For instance, in an ovoid tooth a concave or modified slice with two locking grooves is preferable to a more extensive inlay box preparation and flat slice.

It is quite unnecessary to balance a full crown at one end of a span with another full crown at the other in order to achieve maximum retention. Intracoronal retention in the form of strategically sited pins or locking grooves is just as effective in many preparations. Moreover, this type of retentive form is far superior to the doubtful retentive features of a full crown-ice cream cone preparation on a short clinical crown.

In summary, outline and retentive forms must be governed by the state of the hard tooth structure, the condition of the periodontium, caries susceptibility, and co-operation of the patient with respect to oral hygiene, diet, and so forth. There is absolutely no justification for indiscriminate reduction of sound external tooth contours simply because the available cutting tools make this an easy procedure. Full coverage is no cure-all for gingival margin cavities or the selection of a proper retentive form. On the other hand, blind adherence to the use of rigid impression materials unnecessarily restricts the choice of available tooth preparations and prevents the dentist from attempting the more interesting biomechanical preparations that have evolved with the use of elastic materials and higher speed ranges.

Temporary coverage

Temporary restorative materials, when properly used, can maintain the prepared teeth in occlusal contact and in position in the arch. At the same time they protect the cut tooth surfaces. The state of the marginal soft tissues often determines the choice between immediate permanent restoration or temporary coverage. If, for example, these tissues have a tendency to bleed, placement of the final gingival cavosurface margin should be deferred. A temporary covering combined with periodontal treatment will help to restore a healthy state before the next appointment. Periodontal treatment is accomplished by means of a periodontal pack alone or in combination with minor gingivectomy. A helpful procedure is to use some soft string or some loose cotton rolled into a strand and impregnated with the thickened temporary pack used in the temporary covering. This dressing is placed in the sulcus around the partially

FIGURE 12 Progress of the case illustrated in Figure 2. Note the use of the onlay, pin and locking groove preparation in the lower right quadrant and the full-arch impressions. The first molars in the maxillary arch were extruded and have been reduced and re-shaped.

FIGURE 13 Completion and insertion of the lower right fixed prosthesis. Little adjustment is necessary if accurate full-arch impressions and correct centric occlusion are secured. Note the distal extension of the onlay outline to include an area of lingual decalcification.

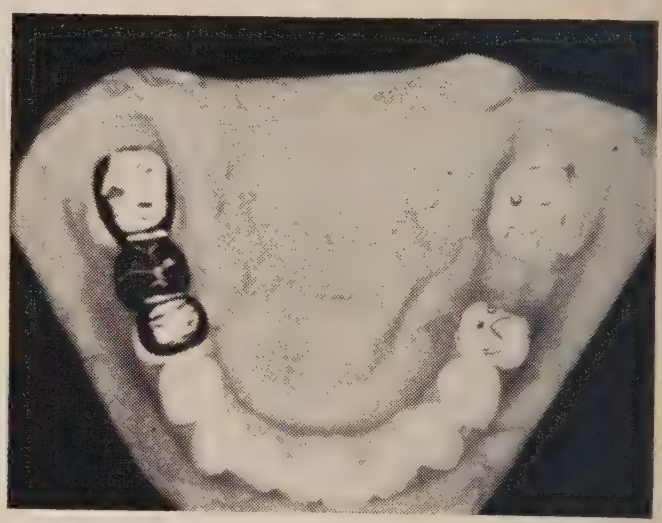


FIGURE 14 Preparations completed in the lower left quadrant and a full-arch impression taken. Note conservative outline on the buccal surface of the bicuspid.

prepared tooth in a manner similar to the insertion of retraction fibres. It is firmly held in place by the gingival edge of the temporary covering. Such a dressing produces indirect or slow retraction and deflection of the marginal tissues. It can stay in place for up to a week as long as it is well anchored. If retained for a longer period, the dressing may become an irritant. This procedure may have to be repeated two or three times. Alternatively, periodontal surgery may produce a similar effect.

Upon final removal of the temporary covering and pack the marginal soft tissue will be healthier and a longer clinical crown exposed. A non-haemorrhagic sulcus with deflected marginal gingiva results in most instances. The terminal finish line can now be placed under conditions of good visibility and with little or no tissue laceration. Elastic impression materials introduced into an area treated in this manner will invariably produce more uniform and more satisfactory results.

Having secured the desired impressions, the temporary covering is replaced to protect the gingival tissues. The temporary covering should be a little short to allow the soft tissues to re-adapt to the necks of the prepared teeth. In the case of jacket crown preparations, a strand of cotton impregnated with zinc oxide-eugenol pack should remain on the shoulder at the edge of the temporary crown, to support the gingival tissues and prevent them from creeping over the shoulder (Figure 11).

Temporary aluminum or acrylic crowns fabricated in the laboratory or at the chairside may also be employed.

More conservative preparations, such as onlays, pin - ledges, and three - quarter crowns, can be covered with cold cure acrylic resin such as Duraseal (Reliance Dental Mfg. Co.). This is applied directly to the dry preparation by a brush technique. The material is built to form, oc-

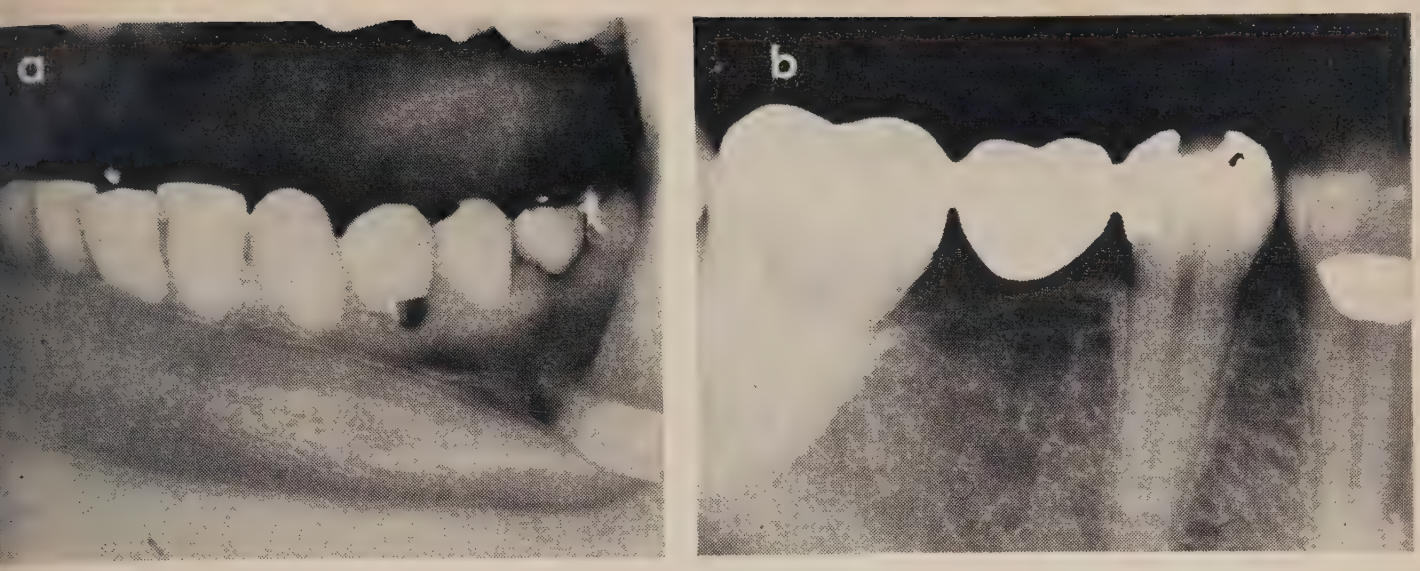


FIGURE 15 (a) Intra-oral photograph of the left quadrant bridge in place. A class 5 gold foil restoration had been placed in the bicuspid during the initial pre-operative treatment. (b) Radiograph showing the bridge in place. The pontic is in light contact with tissue and suitable embrasures facilitate home care procedures. The mesial surface of the anterior abutment was not included due to an ideal contact relationship, low caries susceptibility and excellent home care co-operation.

clusion and contact, and placed directly in pin holes with a fine brush. Inclusion of some unprepared tooth contours aids in retention. This somewhat flexible product does not become as brittle as most other cold cure acrylic resins and so will withdraw more easily. If necessary, it can be used as a base and reinforced with a more rigid type of acrylic resin.

Where a temporary covering and a temporary cement are used in a posterior preparation with pin holes, the latter are filled with short lengths of paper points. This prevents the temporary cement from entering the pin holes.

Impression materials

Impression materials should exhibit the following characteristics:

1. The dies and master model should preferably come from impressions made with the same material and, if possible, from the same impression.

2. If a tray impression fails to register sufficient detail on one preparation, the material used for the tray impression should be adaptable to a band impression.

3. When using a polysulphide rubber impression material in two consistencies, the light-bodied material should be susceptible to easy introduction into pin holes and grooves by the use of a spiral lentulo.

Records, master models and individual dies

The careful clinician is always alert to common problems which result from isolated tooth loss or inadequate restorations. He determines how the supporting tissues withstand insults due to open contacts, marginal discrepancies, and teeth with axial inclinations. He also acknowledges personal limitation of technical skill and clinical experience or seeks consultant opinion where necessary — particularly in patients with advanced pathological conditions, where reaction is disproportionate to the degree of insult.

There is no unanimity on what constitutes an acceptable occlusion or satisfactory mechanical equivalent for movements of the mandible. No effective criteria exist to guide the dentist here. Therefore he should consider very carefully before attempting any costly "reconstruction" or "rehabilitation" that might radically alter an existing occlusal relationship.

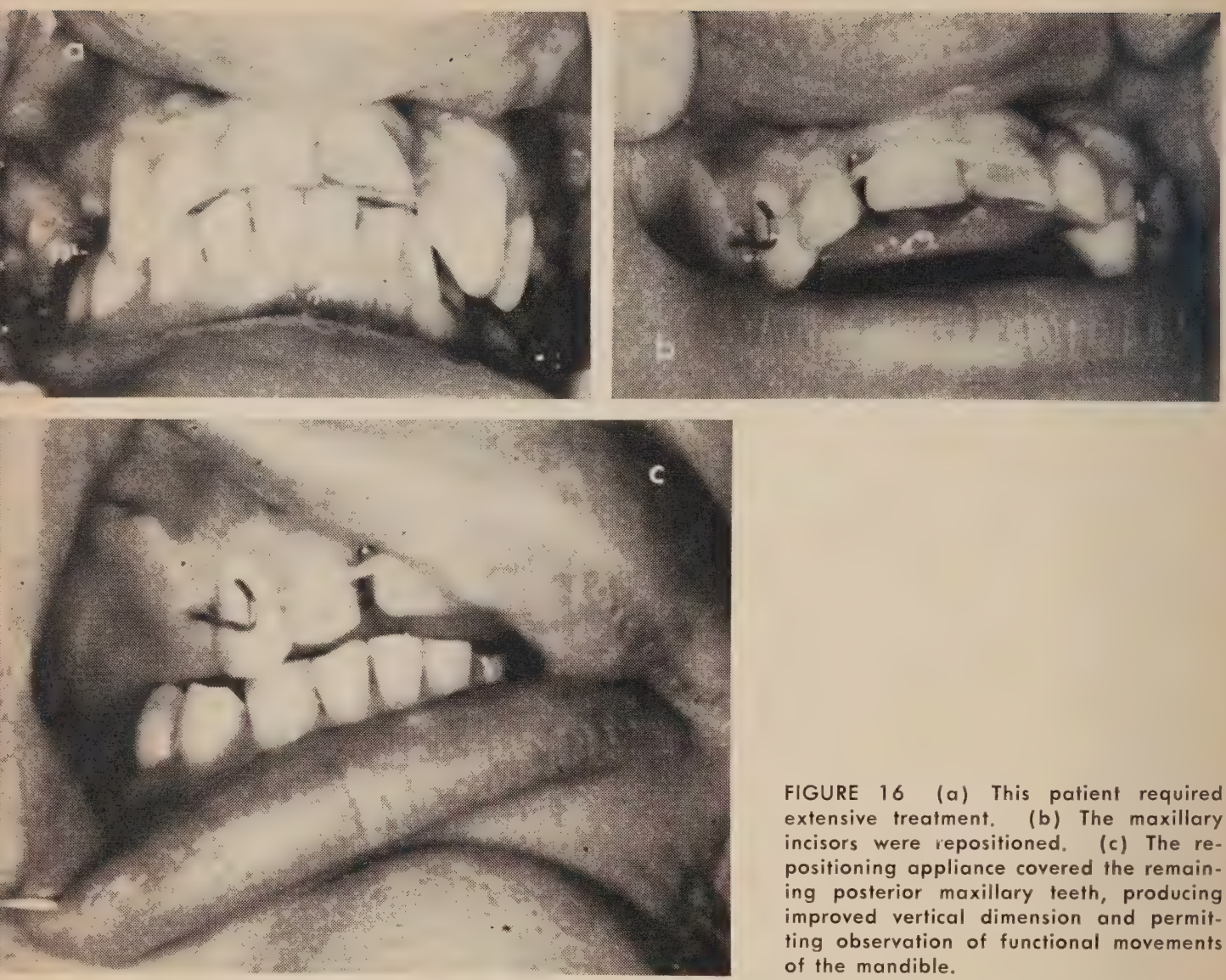


FIGURE 16 (a) This patient required extensive treatment. (b) The maxillary incisors were repositioned. (c) The repositioning appliance covered the remaining posterior maxillary teeth, producing improved vertical dimension and permitting observation of functional movements of the mandible.

Occlusal correction is part of the preliminary procedures that precede restorative treatment. Adjustments are made to bring harmony to the teeth present in centric, protrusive and lateral movements.

Where sufficient teeth (particularly the cuspids) remain, they are used for guidance in restoring lost components of the dental arches. The safest procedure is to take accurate full-arch impressions which include the prepared and unprepared teeth in both arches (Figure 12).

It is safer to complete the various units of work one at a time, adapting each unit to the existing occlusal pattern before proceeding to the next unit. Generally speaking, where upper and lower fixed prostheses are scheduled the lower prosthesis should be completed and inserted first. It is often necessary to insert temporary restorations in both arches before the mandibular prosthesis is completed and inserted (Figures 13-15).

Vertical dimension should not be altered unless sound physiological reasons exist. Where vertical dimension or centric occlusion require more than a slight adjustment, temporary restorations are constructed and observed before the final restorative procedures are carried out. A pattern of occlusion can often be established with temporary acrylic bite-blocks or splints. These are used as a guide when waxing up the occlusal surfaces of teeth in the opposing arches. They provide a functional "chew-in" over a pe-

riod of time during which corrections can be made (Figure 16).

A face bow is used to locate the articulated models on the adjustable articulator except when using a generated path or "chew-in" technique. The novice should restrict the latter technique to patients who require only a few inlays or a short span bridge, and only where a posterior unprepared tooth still remains in occlusion in the quadrant.

Where the posterior prepared abutments are the terminal supports for a quadrant, acrylic transfer indexes or individual acrylic crowns or copings are constructed and ground in so that the maxillary and mandibular models can be accurately related in the laboratory.

Where no change in vertical dimension or centric occlusion is contemplated, the master model and opposing model can often be accurately related by hand. In that event acrylic transfer indexes or copings are particularly important. Bite-blocks are substituted in completely edentulous areas. Here we accept the patient's "acquired centric occlusion" and construct restorations accordingly.

The simpler the articulator and records used, the more frequently must laboratory procedures be checked in the patient's mouth. Complete familiarity with an articulator and with methods for relating models is essential. Equally important is the co-operation and understanding of a competent laboratory technician. But this co-operation must not be abused by the dentist. The relating and trimming of models and the careful marking of finish lines of preparations on the dies is a task for the dentist. There would be less confusion and better co-operation if this were common practice.

The acquisition of a complex articulator is of little use unless the principles of such a device are clearly understood and adhered to. There are usually several different ways of restoring the mouth to function. The choice is immaterial provided the final restorations are in harmony with the existing teeth and do not cause further irritation.

Summary

1. A patient should receive comprehensive dental treatment suited to the individual concerned. The practitioner must follow a treatment plan that is logical and that will benefit the patient under consideration.

2. Biomechanical principles are applied when preparing individual teeth for cast restorations.

3. There is no substitute equal to sound enamel. Axial contours should be reduced with discretion and only where necessary.

4. Missing components of the dental arch must be replaced with care and understanding in order that function may be maintained or improved.

5. Full advantage should be taken of the opportunities afforded by restorations. Many problems can be reduced or eliminated by proper use of temporary restorative materials.

6. Complete co-operation, mutual respect, and understanding must exist between the practitioner and the dental laboratory technician. Dentists can do much to further this relationship by their own attitude.

The practitioner's knowledge is derived from many sources and often from several different schools of thought. Ultimately this forms the pattern by which he conducts his practice. This pattern is never static; rather it constitutes a stable base on which he builds from additional acquired knowledge.

Résumé

Cet article décrit les façons de restaurer une dent en soulignant les risques de se tromper dans le choix du traitement ou du matériel obturateur.

Il n'y a pas de raison valable, sous prétexte que les instruments modernes facilitent la tâche, pour détruire inutilement des tissus sains d'une dent pour en élargir la forme de contour.

Dental Department,
Montreal General Hospital

Review of recent developments in materials used for operative dentistry

Z. Kasloff, D.D.S., M.S.D.,*
Winnipeg, Manitoba

The author describes recent advances in amalgam, cast gold, gold foil, porcelain bonded to metal, silicate cements, direct filling resins, cements, and cavity lining materials. Selection and employment of these materials is based on their physical properties, handling characteristics and effect on the tissue with which they come in contact.

Reparative measures to restore teeth mutilated by dental caries continue to account for a major portion of the general practitioner's professional time. Despite progress in preventive dentistry, handling of the problem still depends chiefly on early detection, instrumentation and restoration of the affected parts by usual operative methods. To this end restorative materials play a very important part. In consequence dentists are constantly seeking more information about newer techniques and materials in an attempt to provide a better service for their patients.

There has been notable progress in the science of dental materials during the last quarter century. We have gained much information about the physical properties, handling characteristics and effects of manipulative variables on dental materials. This has resulted in better products from the manufacturer and greater discrimination on the part of the dentist in the choice of materials for restorative purposes.

The purpose of this paper is to focus attention on recent advances and developments in restorative materials, particularly those most commonly used in operative dentistry.

Amalgam.—Silver amalgam remains by far the most universally employed restorative material. Amalgam is probably credited for saving more teeth than any other material used in operative procedures. The relative ease of manipulating this material has led to much abuse. As a result some dentists have unfortunately cast amalgam aside as an inferior and undesirable restorative material, giving preference to cast gold and gold foil restorations. Fortunately, investigators and meticulous clinicians recognized the reasons why so many amalgam restorations failed in the past. Renewed interest in the use of amalgam has again elevated this material to the rightful place it presently occupies.

Recent studies by Mahler and Terkla[1] and Nadal et al,[2,3] relating stress concentrations to cavity design, indicate the necessity of modifying class 2 cavity preparations by rounding the axio-pulpal line angle and creating more depth in the isthmus. This results in greater resistance to fracture of the amalgam filling in this area. Other research emphasizes the need for employing a low mercury-alloy ratio. Eames[4] has demonstrated the use of an approximately 1:1 mercury-alloy ratio as a means of assuring a routine low residual mercury content of the finished restoration. Using small diameter condensing instruments, this method yields an amalgam of high one-hour compressive strength value. Although the strength value after

*Associate professor of restorative dentistry, Faculty of Dentistry, University of Manitoba.

one week is no better than with other mercury-alloy ratios, provided the residual mercury does not exceed 55 per cent, the one-hour compressive strength value is markedly increased. The importance of this lies in the ability of the stronger amalgam to resist fracture during the initial critical period after placement.

A more conservative approach to the design of cavity preparations is advocated by Markley.[5] His views are well substantiated by clinical evidence of the success of restorations placed in cavities designed according to his recommendations. A further contribution made by Markley is the incorporation of threaded iridioplatinum pins to add strength to areas of the teeth that have been fractured or undermined by caries.

Evidence supporting the need for avoiding moisture contamination during handling and placement of the amalgam filling material is well documented and lends further support to the superior results achieved when the rubber dam is employed.

Cast Gold Inlay. — The introduction of high speed cutting instruments coupled with the development of elastic impression materials has greatly reduced operating time and promoted the practice of quadrant treatment. Accurate tissue reproduction with currently available impression materials facilitates the fabrication of precise, well-fitting cast gold inlays utilizing the indirect technique. Well controlled studies[7-10] indicate that, clinically, reversible hydrocolloid, silicone and polysulphide polymer impression materials are equally accurate. It requires only that the dentist be fully aware of the particular manipulative characteristics of the respective materials. Silicone materials have shown erratic results because of their limited shelf life in the past. Manufacturers are cognizant of this shortcoming and are constantly improving their particular products.

Techniques involving fabrication of removable dies have been developed, with the result that wax patterns can be adapted and carved exactly to form and relationship requirements. Improved stone die materials of greater hardness and dimensional accuracy are adequate for good inlay construction. Polysulphide polymer impression material is of particular interest because it can be silver-plated with a good degree of accuracy.[11]

The casting process has remained virtually unchanged since it was first introduced to dentistry. More knowledge is available, however, with respect to the behaviour of inlay wax during moulding and investing.[12] Position of the pattern in the casting ring, influence of various types of asbestos liners,[13] and selection of investment compound have all been carefully studied in relation to the size and distortion effect on the pattern mould. The introduction of the controlled water-added technique[14] to investing procedures has provided a degree of choice for mould expansion in the hygroscopic technique. A better understanding of the metallurgical principles involved in the casting procedure has minimized the occurrence of rough surfaces and porosities in the gold casting.[15] Recent reports[16,17] indicate that no single casting technique routinely produces perfectly fitting castings. Subject to an understanding of the variables involved, any carefully controlled procedure will provide clinically acceptable castings.

The gold inlay remains a restoration of high quality and durability, capable of providing service to the patient for the longest period of time.

Gold Foil. — With the exception of its colour, gold foil possesses most of the requirements of the ideal restorative material. The handling of this material requires meticulous attention to detail. It has often been stated that anyone capable of placing a well made gold foil restoration is capable of executing any difficult procedure in dentistry. While some may challenge this claim, no one can dispute the need for careful technique. Applied judiciously, this material should be much more frequently used in routine restorative practice. It effectively restores class

3 areas in anterior teeth where aesthetic qualities are not of paramount concern, as well as class 5 areas in anterior and posterior teeth. The material is unique in that it can be welded at room temperature to produce a dense homogeneous mass. Adaptation to cavity margins is excellent; the filling requires no cementing medium for retention; nor is it subject to abrasion and solubility.

Hollenback and Collard[18] recently investigated the physical properties of cohesive gold in a well-controlled study aimed at eliminating human variables. Of particular interest is the development of compacted or powdered gold by Baum.[19] This material is so constituted that its mass is about ten times that of conventional gold foil. As a result the material can be placed and condensed much more rapidly and requires no special condensing apparatus other than hand pressure. Initial results appear to be quite satisfactory and encouraging.

Porcelain Bonded to Metal. — Recently there have been made available to the dentist combinations of metals and porcelains capable of producing strong restorations with good aesthetic qualities. The specially designed metals for this purpose range in composition from gold alloys to cobalt-chromium alloys, each particular composition being developed by a particular manufacturer. The most successful ones to date appear to be the combination of gold alloys and porcelain whose respective linear coefficients of thermal expansion are carefully matched. Johnston et al[20] recently described the characteristics and technique of handling various combinations of casting metals and porcelains. Shell and Nielsen[21] have revealed the nature of the bond that exists between the gold alloys and porcelain. Another development relates to the use of special investments—phosphate-bonded investments for use in casting the gold alloys and ethyl silicate investments for use with the higher fusing range metals. A most recent report[22] deals with further refinements of technique for obtaining colour effects in the porcelains with superior qualities.

To complete this discussion it is necessary to mention a development whereby fused porcelain inlays can be fabricated directly in a special refractory investment material without the use of a platinum matrix. A reduction in the size of the cement line, closer adaptation and denser porcelain are claimed as features of this technique by investigators[23-25] in the field of ceramics.

Silicate Cements and Direct Filling Resins. —The search for a universal filling material continues unabated. Meanwhile, interest in the application of silicate materials and direct filling resins has not waned. It appears likely that these materials will remain with us until better ones possessing superior aesthetic qualities and ease of application are developed. The silicate restoration represents one of the less durable filling materials which is subject to much abuse. This has frequently resulted in a restoration of inferior quality and short life. Quite apart from technique which is amply discussed in the literature, an understanding of the nature and characteristics of silicate cement is necessary to obtain the maximum benefit from the properties of this type of restoration. Paffenbarger[26] has demonstrated the results of careless attention in handling. Skinner[27] has also provided technical information on the composition of silicate cements. An interesting feature of most modern silicate cements is their ability to decrease the enamel solubility of surrounding tooth structure. The exact mechanism of this phenomenon is not fully understood. However, it appears that the presence of a fluoride flux in its composition influences this activity.[28] The anticariogenic value of this material is noteworthy. Some recent silicate products have been introduced which contain glass fibres as fillers. Available evidence[29,30] does not substantiate the claims made for these products by manufacturers. Furthermore, solubility of the material still remains a factor.

Auto-curing resins have received increasing attention largely because of the solubility, poor colour stability and low resistance to abrasion of silicate cement. Early resin restorations failed badly, but with more knowledge about the disparity between the co-efficients of expansion of resin and tooth structure improved restorations are now possible. The use of fillers[31] and lining intermediaries have reduced the marginal discrepancy considerably. This still remains a problem, however, resin restorations exhibiting loss of marginal adaptation proportional to their length of exposure to the oral environment.

Cements and Cavity Lining Materials. — The cast gold inlay, porcelain inlay, and combinations of cast gold and porcelain require some material capable of luting the restoration to the prepared tooth. Zinc phosphate cements have been most frequently used for this purpose and will probably continue as such for the present at least. Their colour leaves something to be desired, however, particularly where anterior restorations of glazed porcelain have to be cemented. Attempts to meet this situation have led many to use silicate filling material because of its greater translucency and ability to blend. But the use of silicate cement as a luting medium is considered unwise because of the reduced strength values obtained when mixing it to a consistency suitable for cementation. Likewise, the solubility and disintegration of the cement is increased. Silico-phosphate materials are a hybrid mixture of silicate and zinc phosphate cement powders. The properties of this type of material appear to be intermediate between those of both constituents. All of these materials exhibit considerable acidic properties which may prove irritating and injurious to the pulp.

Resin cements have elicited interest because of their ability to produce a medium having satisfactory properties, at least in the dry state. They can be mixed to a consistency which produces a film thickness much less than that of either silicate or zinc phosphate cement. The deleterious effect of acid production is likewise absent. Resin cements must be carefully handled, however, because the material is most difficult to remove once it has been cured. Well controlled laboratory and clinical investigations[32,33] indicate that the adhesive qualities are excellent initially, but are lost when moisture in the oral cavity comes in contact with the resin cements.

Zinc oxide and eugenol has been used as a temporary cementing material for many years. Because of its non-irritant qualities, some dentists have used the material as a permanent cementing medium with apparent success. The lack of compressive stress is a factor producing weakness in the material. Colour is also an undesirable characteristic. Recently studies[34,35] have been undertaken to improve these physical characteristics and much progress has been made in this direction. The sealing ability and non-irritant qualities make this material a desirable one. It seems likely that its use as a cementing medium would be restricted to the posterior region of the mouth.

A well controlled study[36] on the solubility of various types of cements yields valuable information, and a very recent paper by Phillips[37] compares the properties of the present available luting materials. Many of these materials are used routinely as cement bases under restorations where deep-seated cavities would place the metal filling close to the pulp. Zinc phosphate cement has been most frequently used for this purpose. Recent information revealing the irritating and injurious effect of phosphoric acid on the pulp has generated renewed interest in the use of zinc oxide-eugenol mixtures reinforced with suitable additives to provide adequate strength as a base material. Brauer[35] reports strength values in such compounds as high as approximately 12,000 lbs. per sq. inch. This compares favourably with values for conventional cement bases.

There appears to be good evidence that

copal varnishes afford adequate protection against permeability to acids. They also permit closer adaptation of restorative materials to the cavity walls.[38,39] A reduction in sensitivity after placement of restorations is particularly noticeable. The routine use of copal varnishes on the whole cavity preparation appears to offer adequate protection under silicate fillings and cement bases to the deleterious action of acids.

Summary

This article evaluates current developments in restorative dental materials on the basis of sound and well-conducted experimental and clinical evidence. An understanding of the important physical properties of these materials, their handling characteristics, and their effect on the tissue with which they come in contact is necessary for the selection and application of the appropriate material.

Résumé

L'auteur énumère les progrès réalisés dans le domaine des matériaux pour obturer les dents. Leurs propriétés physiques, les façons de les manipuler et l'influence qu'ils exercent sur les tissus avec lesquels ils viennent en contact régissent leur choix et leur emploi.

Un amalgame contenant 1 pour 1 d'alliage et de mercure donne une obturation qui a une grande résistance (force de compression d'une heure) et une teneur minime de mercure.

Des tiges striées en iridium platiné renforcissent les obturations en amalgame des dents dont les couronnes sont fort avariées.

Les matériaux à empreinte à base de substances hydro colloïdales réversibles, de polymers polysulfurés et de silicone donnent d'excellents résultats. Les polymers polysulfurés sont surtout à retenir parce qu'ils peuvent être plaqués à l'argent pour faire des modèles exacts qu'on peut manipuler.

L'or pulvérisé qu'on vient de mettre au point, peut être inséré et condensé beaucoup plus rapidement que l'or en feuille.

Les alliages d'or utilisés avec une porcelaine possédant le même coefficient de dilatation linéaire thermique donnent des obturations solides possédant de bonnes qualités esthétiques.

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780 Bannatyne Avenue

Common problems arising from new developments in operative dentistry

G. A. Brass, D.D.S., B.S.D.,*

Winnipeg, Manitoba

How much tooth structure may safely be sacrificed before cavity design must be modified to prevent coronal fracture? What principles govern cusp protection and replacement of cuspal surfaces in posterior teeth? How does a cingulum finger in anterior three-quarter veneer crowns improve marginal adaptation? How should enamel margins be finished? What is the proper sequence of tooth preparation in quadrant treatment? Why should dentinal tubule sealing materials be routinely used for pulp protection? How does the direction of enamel rods, depth and organization of enamel over cusps and in crevices, axial forms of crown surfaces, and form and position of cusps affect the design of restorations? These problems are answered by the author of this article.

The problems that the clinical dentist must face in any era will vary with the concepts and practices current at that particular time. The newer developments in operative dentistry have imposed upon to-

*Professor and head, Department of Retorative Dentistry, University of Manitoba, Winnipeg.

day's practitioner problems which demand new solutions.

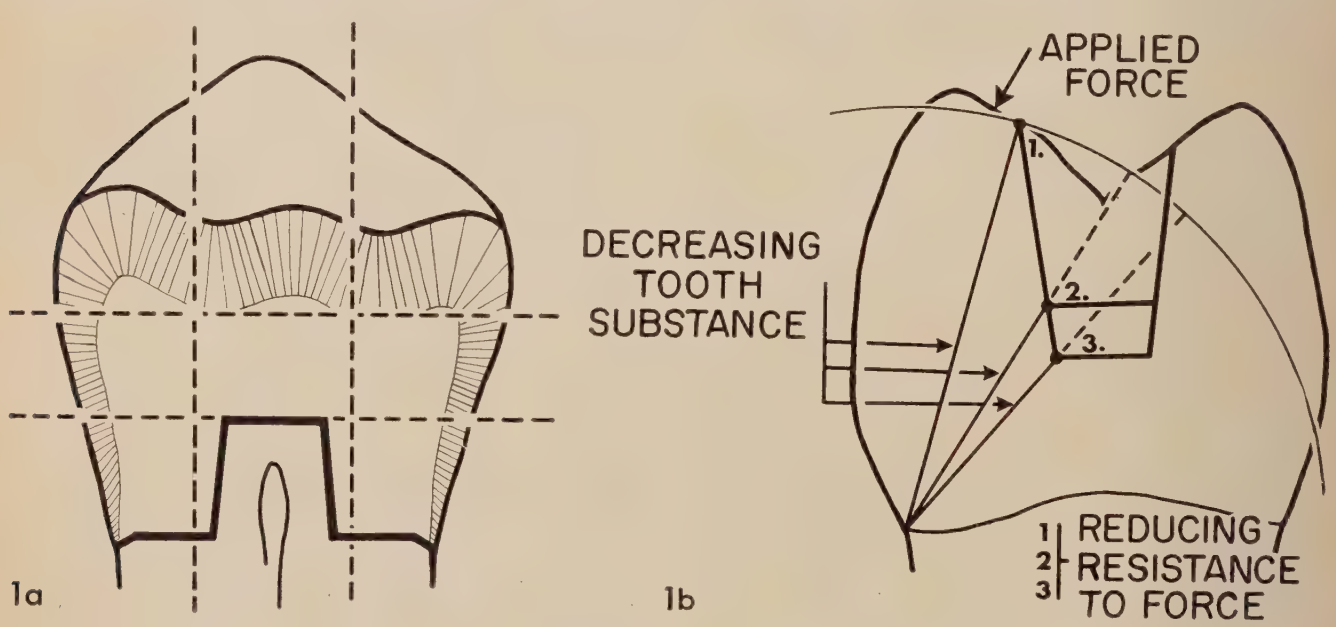
Theoretical questions of a few years ago are today's problems and must be answered in a practical manner consistent with both the health and integrity of the tissues involved and in the light of the instruments and materials available and the techniques currently complementing them.

Although a "conservative approach" has long been stressed in restorative dentistry, the concern in maintaining this criterion lags behind the newer techniques of cutting tooth tissues and the preparation and insertion of restorations. The object of conservatism in dentistry is the advancement of methods and techniques which promote not only the retention of the natural teeth in a fully functional healthy environment, but do so with minimal loss of tooth tissues consistent with good preventive practices. This encompasses minimal cutting of tooth structure consistent with extension for prevention; maintenance of the health and comfort of the pulp; and establishment of contact, contour and anatomical form in harmony with the supporting tissues of the teeth.

The advent of the air turbine makes concern for conservatism more important than ever before. This instrument alone has encouraged and facilitated a great deal of unnecessary tooth reduction because of the ease with which this reduction can be accomplished. The almost simultaneous introduction of elastic impression materials and the application of quadrant treatment have transferred to the laboratory many hours of work formerly performed by the dentist. Each of these developments introduces new considerations to restorative dentistry.

Clinical results, confirmed by thousands of restorations, suggest that there is little reason to alter the design of the conventional class II restoration. Within classical limits of tooth reduction these restorations have functioned well with minimal loss of cusps, vitality or function. Increased reduction of tooth substance resulting from gross caries or indiscriminate use of cutting instruments does, however, produce a higher incidence of fractured cusps, dead pulps and malfunctioning teeth. Analysis of cavity design provides an explanation for this phenomenon. In MOD restorations the loss of mesial, occlusal and distal surfaces divides a tooth crown into two distinct segments. Excessive reduction increases the mechanical liability to fracture. Close study of a tooth prepared for an MOD restoration and then sectioned mesio-distally demon-

FIGURE 1 Sagittal views of MOD preparations. (a) Note how little tooth structure unites the buccal and lingual cusps. (b) Diminishing tooth substance increases the possibility of fracture.



strates how little tooth substance unites the buccal and lingual portions (Figure 1a). Note how long the fulcrum is in relationship to this remaining portion of dentine, and how additional loss of dentine would appreciably increase the possibility of fracture (Figure 1b).

The preparation for any restoration of intracoronal design leaves a tooth mechanically in a weaker condition. The problem to resolve is: how must cavity design be altered to offset the possibility of coronal fracture in teeth where cavities must be developed beyond classical proportions? The preparation altered to meet this demand must be so designed that the greater portion of the occlusal force is borne by the gingival seat. The design of this gingival seat should resist rotation of the restoration. This demand for increased resistance form is only met by producing a distinctly flat gingival floor with squared angles.

Cuspal protection should be so designed that the result will be adequate in form and permanent in character. An unsightly display of gold is undesirable. Fortunately, nature offers much assistance by positioning the maxillary teeth buccal to the mandibular teeth.[1] This arrangement assists in two ways. It favours a minimal display of gold which, if well contoured along the occlusal margins of the maxillary buccal cusps, can be made aesthetically quite acceptable. It also facilitates full protection of the lingual cusps of upper and the buccal cusps of lower teeth (Figure 2a), for in each of these cusps both inclined planes are involved in masticatory function and both should be protected. This can be done effectively by reduction of these planes, replacement being included in the subsequent casting. For convenience the term "fully functional" is applied where both inclines are involved in a functioning occlusion.

Some points relative to the replacement of cuspal surfaces must be emphasized. Margins must extend beyond the functioning areas of the cusps. Gold replacing the reduced area must have sufficient bulk to resist any change in form and

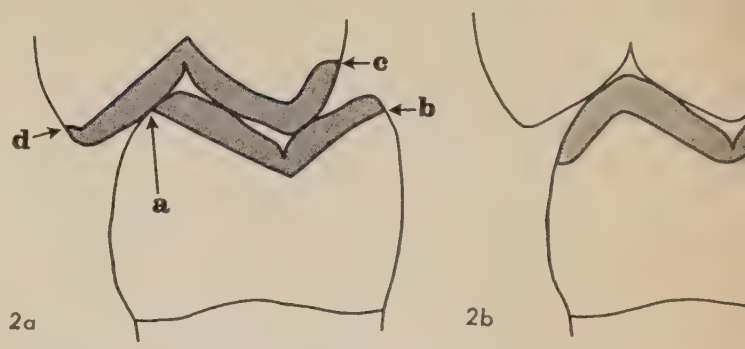


FIGURE 2 (a) Cusp protection and replacement of cuspal surfaces. Margins must not terminate in an area of active function [a]. This plain straight line finish disregards enamel rod direction [b]. This chamfer margin is beyond the area of active function, produces a distinct terminal line, and is consistent with enamel rod direction [c]. This margin reflects minimal extension for aesthetic purposes and is consistent with the direction of enamel rod endings [d]. (b) Both the buccal and the lingual inclines of the buccal cusps of lower posterior teeth are involved in masticatory function. Preparations should be extended onto the buccal incline of the buccal cusps and should include all of any wear facets present.

prevent the opening of margins under the stress mastication. A chamfer is desirable; it does not add to the visible gold and the bulk helps to ensure the integrity of the finished margins in these locations. These principles of coverage for fully functional cusps must be routinely applied in designing three-quarter crown preparations for teeth in the lower arch. Adverse aesthetic results are few and minimal. A three-quarter crown preparation for upper posterior teeth automatically includes the comparable areas which are represented by the inclines of the lingual cusps.

Three-quarter crowns in anterior teeth

A common and discouraging feature of three-quarter crowns placed in anterior teeth is the occurrence of a broad cement margin along the gingival outline. This results from inability of the cementing material to escape freely during cementation. Frequently this margin is of such proportions that even subsequent working of the marginal gold fails to achieve essential adaptation of the restoration to tooth structure (Figure 3a). A casting must therefore be designed that will au-

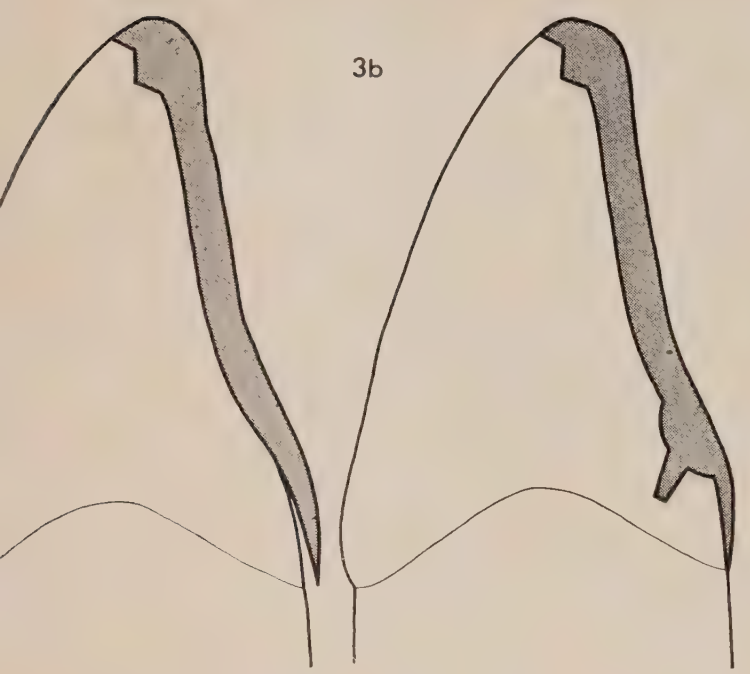


FIGURE 3 Sagittal views of two three-quarter crown preparations. A three-quarter veneer restoration not directed to place by a guiding finger of gold within the cingulum is subject to marginal error that can be eliminated if such a guide is used.

tomatically guide the gingival margin of the casting into contact with the cervical finish line of the preparation. This is accomplished in three-quarter crowns for anterior teeth by routinely incorporating a lingual pin in the area of the cingulum. A simple retentive pin is not enough. What is needed is a rather more bulky finger, supported at its base to prevent bending, and with a lingual slope or incline. This finger enters the depression designed to accept it, sliding into place and drawing the lingual margins into a close fitting relationship (Figure 3b). The size and position of this finger varies according to the amount of tooth structure that is accessible and the line of pattern withdrawal. This type of restoration precludes any need for additional resistance form. Instead of a conventional pinledge design with its sharp angles and flat base, the pin base in this instance can be obtained with a round diamond stone. The initial penetration for the pin or finger is best obtained by using a No. ½ round bur. This entrance is enlarged in a series of steps and finished with a tapered fissure bur. Again, the final size will depend on the bulk of tooth substance available and the necessary line of pattern withdrawal.

Finishing enamel margins

Enamel margins are frequently produced with diamond instruments. The enamel rod, being crystalline in structure, is extremely susceptible to fracture. While gross reduction of this friable material with high-speed diamond cutting instruments is acceptable, there invariably remain many broken and loosely held particles along the edges. These will never form an adequate margin. The edges must be finished with fine mounted carborundum stones and fine abrasive disks, thereby permitting the establishment of a sound finish line.[2]

Tooth reduction and duplication

Tooth loss occurs as a result of pulp death and subsequent adverse sequelae or due to loss of bony support. Each of these possibilities is important in restorative dentistry. The less tooth substance sacrificed and the less heat generated in tooth reduction, the greater is the chance of complete pulp recovery.[3]

Maintenance of the natural buccal and lingual axial surfaces helps to preserve the integrity of the periodontal attachment. Everything possible should be done to limit the length of the gingival seat to the requirements of extension for prevention interproximally. Even more important is the protection offered buccally and lingually by the natural contours of these axial planes. With this in mind one must conclude that a three-quarter crown is less irritating than a full crown, and an inlay is even more bland both in preparation and replacement.

The ability to reproduce anatomical form in a restoration depends largely on the guidance provided by the residual tooth structure. The natural contours remaining in a partial restoration (three-quarter crown or inlay) obviously provide better guidance than the reduced

tissues of a full veneer crown with nothing more to offer than a cervical outline. The re-establishment of adequate buccal and lingual contours is difficult enough for the trained dentist; without his direction it becomes an unreasonable requirement that should not be imposed on an unsupervised dental laboratory technician.

Rubber dam application

The unpopularity of rubber dam stems almost entirely from the inability of the average clinician to apply it without embarrassment. One cannot over-emphasize the importance of this material in restorative dentistry. Rubber dam application facilitates the maintenance of natural surfaces and relationships, helps when finishing the details of a preparation and simplifies cementation of the restoration. No restorative material so far developed can be placed well in the presence of moisture. The success of cast gold restorations is dependent on the cementing material and even minimal amounts of moisture affect zinc phosphate cement adversely. A good marginal seal, alone, dictates the use of rubber dam for cementation.

Guides to replacement

Seating of the restoration is much easier where a maximum amount of tooth substance has been preserved. The plain walls and definite angles of a well designed and cast inlay unerringly guide such an intracoronal restoration to a positive pre-determined seating.

In contrast, the full crown preparation with its rounded contours provides minimal guidance. A full crown, even when accurately cast, is extremely difficult to seat either quickly or accurately.

Quadrant treatment, where no cusps remain as a guide to vertical dimension, creates its own problem. Where extensive occlusal rehabilitation is desired without alteration of vertical dimension, it is advisable to reduce and restore only alternate teeth in a quadrant at one time before proceeding with the remaining teeth. This is essential where the dentist delegates technical work to a dental laboratory technician. It reduces the range of error to reasonable limits.

This introduces a further consideration. It is much easier to prepare a tooth for full coverage than for an inlay or for partial coverage, whereas it is much easier to make a wax pattern of desired form for casting an inlay or partial coverage restoration than for a full crown. In selecting a given course of treatment, it is necessary to consider the extent of responsibility being delegated to the dental laboratory technician and the degree of supervision exercised over that individual. The introduction of elastic impression materials, coupled with interest on the part of commercial dental laboratories who desire to increase their volume of business, has inspired much of the current trend to high-speed techniques. Yet it is a most unusual dental laboratory technician who can appreciate the weight of responsibility he assumes when he fabricates even a single full coverage restoration. In the final analysis, it is the dentist who is responsible for services rendered to a patient, regardless of whether or not he delegates technical phases to a dental laboratory technician. By the same standard the dentist is obligated to provide the necessary supervision, advice and guidance to the dental laboratory technician to whom these duties are delegated.

Pulp protection

The current use of tubule sealing materials has greatly reduced the incidence of untoward effects from cementing materials. The use of cements cannot be eliminated. Routine application of sealing materials is therefore essential. A point of importance, too, is that the intracoronal or inlay type of restoration permits easier escape of excess cement than any other restoration, thus minimizing the hydraulic forces directing the

liquid component of the cement mix into the dentinal tubules.[4]

Areas of depth or of near or fine pulp exposure should undergo indirect pulp capping with a preparation containing calcium hydroxide. This in turn is covered with zinc oxide-eugenol. If the restoration is ready it should be relieved and cemented temporarily with zinc oxide-eugenol for eight to ten weeks. By that time pulp recovery should be complete. The restoration is then removed and the remaining carious dentine explored and eliminated. A tubule seal is applied to the prepared dentine and the casting is then re-cemented to place permanently.[5]

Tooth form

To minimize errors in replacements for lost tooth structure, one must be familiar not only with the form of the areas involved, but also the character and organization of the tissues and how these react to the instruments used in their reduction must be understood.

The diagrams in Figure 4 are of four natural posterior teeth prepared by grinding in bucco-lingual cross-section. These sections were finished with fine sand paper disks, immersed in an eosin bath, dried and photographed. The resulting photographic transparencies were then projected to magnify them on a sheet of white paper and tracings were made. The tracings serve to illustrate the direction of enamel rods, depth and organization of enamel over cusps and in crevices, axial forms of different crown surfaces, and the form and position of cusps.

Direction of enamel rods. — The marginal finish of every restoration placed in a tooth crown is dependent on rod direction. At the gingival margin the rods fall away in a gingival direction. They rise occlusally with an increasing angle as they approach the tips of the cusps. This influences the form which enamel walls take at different horizontal levels. A cavity penetrating sound dentine on an axial wall will have the enamel portion of its walls diverge in different directions. The enamel portion of the cavity walls will vary in thickness according to the axial level of termination (Figure 4d).

Depth and organization of enamel.—The shape of the dentino-enamel junction resembles a broad flat "S" curve over both axial surfaces of the upper teeth. The buccal surface of the lower teeth also has enamel organization in this "S" form, but the lingual cusp enamel diminishes uniformly from cusp to the gingival margin as does a half crescent.

Axial surfaces vary from tooth to tooth. — The dominant convexity of the lower second molar is present, but not as acute, in the lower bicuspid. Serial sections would demonstrate that the angle increases as one progresses from the first bicuspid to the second molar. Gingival prominence is more evident over the mesial than the distal cusps of the molars. In the lower posterior teeth the convexity of the axial surfaces between the level of the gingival prominence and the tips of the cusps, although present, is more flattened than on any other surface illustrated. A restoration acceptable to the maintenance of the health of the gingival investing tissues must incorporate these characteristics in proper form and proper position.

The form and position of cusp height directs the stimulating forces of mastication upon the investing tissues. — Cusps that are too prominent tend to interlock. Lateral movement under these conditions will be traumatic. Occlusal surfaces that are too flat alter the direction of the forces borne by the supporting bone. The resultant redistribution and redirection of forces may well result in irreparable damage in the affected area.

Summary

The author describes how careful planning facilitates successful maintenance of sound tooth substance with far less tissue reduction than evidenced by the current over-abundance of full coverage restora-

tions. Natural tooth form is intimately related to the health of the supporting tissues. Whenever possible this relationship should remain undisturbed. When pathological mutilation or other circumstances make full coverage mandatory, a successful restoration should approximate the physiological form of the natural tissues as closely as possible.

The use of calcium hydroxide and zinc oxide-eugenol in combination with tubule sealing materials is described.

The integrity of pulpal and periodontal tissues is of paramount importance whatever type of restorative treatment is attempted.

Résumé

Combien peut-on meuler sans danger les tissus de la dent avant d'être obligé de modifier la forme de la cavité pour éviter la fracture de la couronne? Quels principes règlent la protection de la pulpe et le remplacement des surfaces occlusales dans les dents postérieures? Jusqu'à quel point un gradin périphérique pratiqué dans une dent antérieure aide-t-il à l'adaptation marginale d'une couronne "veneer" trois-quarts? Comment faut-il finir une surface d'émail? Quel ordre doit-on suivre dans la restauration des dents d'un même quadrant? Pourquoi faut-il toujours se servir, pour protéger la pulpe, d'une substance qui obture les canalicules dentinaires? De quelle façon la direction des bâtonnets d'émail, la profondeur et la disposition de l'émail sur les cuspes et dans les sillons, la forme des surfaces axiales de la couronne et la forme et la localisation des cuspes affectent-elles la forme des restaurations?

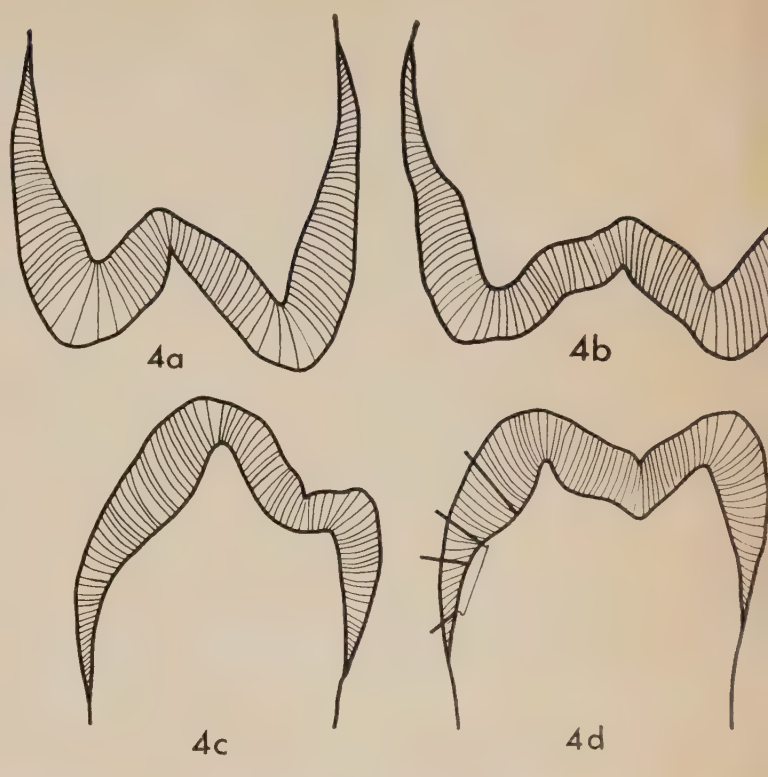


FIGURE 4 Tracings of photographs of buccolingual ground sections of four different human posterior teeth. Note direction of enamel rods, depth and organization of enamel over cusps and in crevices, axial forms of different crown surfaces, and form and position of cusps.

L'auteur, dans son article, répond à toutes ces questions.

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780 Bannatyne Avenue

par Marcel Hébert, D.D.S., Montréal, P.Qué.*

La simplification du travail en dentisterie opératoire

A system of performing operative dentistry is outlined. The dentist works in a sitting position with a minimum of movements, and with or without the help of an assistant. High speed evacuation is constantly used. This reduces the need for repeated expectoration, since all pieces of amalgam, cement and so forth are picked up by the high-speed salive ejector-evacuator, leaving the mouth perfectly clean. If the patient finds it necessary to spit during the operation, he can hold on his lap a funnel lined with a perforated paper cup and connected to the evacuator.

Les techniques en dentisterie opératoire deviennent, avec le temps, assez personnelles. Le fraisage et le meulage d'une dent peuvent se faire de différentes manières. La méthode choisie doit se baser sur des principes classiques et consacrés en dentisterie opératoire.[1] Cet article expose les grandes lignes d'une technique de fraisage qui permet au dentiste de travailler assis et d'opérer, seul ou avec une assistante, avec un minimum de mouvements.

Trois contre-angles sont utilisés: une turbine (genre Aerotor), un contre-angle à très grande vitesse variable et un autre à vitesse ordinaire.

La turbine exécute son meilleur travail à une vitesse libre de 300,000 r.p.m., en y appliquant une très légère pression. Le Page-Chayes 909 oscille, au gré du dentiste, entre une vitesse de 1,500 r.p.m. et 180,000 r.p.m. Il lui permet, grâce à un excellent mouvement de torsion, de conserver très délicate la sensation du toucher; il possède de plus un jet d'eau dont le débit peut se régler pour garder le champ opératoire mouillé, propre et clair. Ce jet requiert environ la moitié de l'eau d'une turbine.[2]

Cavité de classe II pour amalgame

L'émail se perfore, grâce à la turbine, à l'aide d'une fraise à fissure du calibre désiré, à un angle de 45 degré (Figure 1). La partie occlusale est d'abord préparée et la partie proximale taillée sans détail. La forme générale de la cavité est esquissée.

La deuxième phase de cette technique consiste à finir les parois de la cavité au moyen d'un contre-angle à très grande vitesse variable (le Page-Chayes 909). Une fraise à fissure de dépouille ou un diamant (Figure 2) complète cette partie de la préparation. La vitesse variable et l'excellente flexibilité de cet instrument permettent d'obtenir les angles et les rétentions nécessaires.

S'il reste un peu de carie, une fraise ronde de la grosseur appropriée, tournant à la vitesse ordinaire, accomplit le travail nécessaire.

Ces trois phases du fraisage s'accomplissent sans que le dentiste ait à changer de fraise ou de position. Sa main et son poignet sont les seules parties du corps qui bougent. En effet, au cours de l'induction de l'anesthésie locale, le dentiste

*Professeur de l'histoire de la chirurgie dentaire, Université McGill, Montréal.

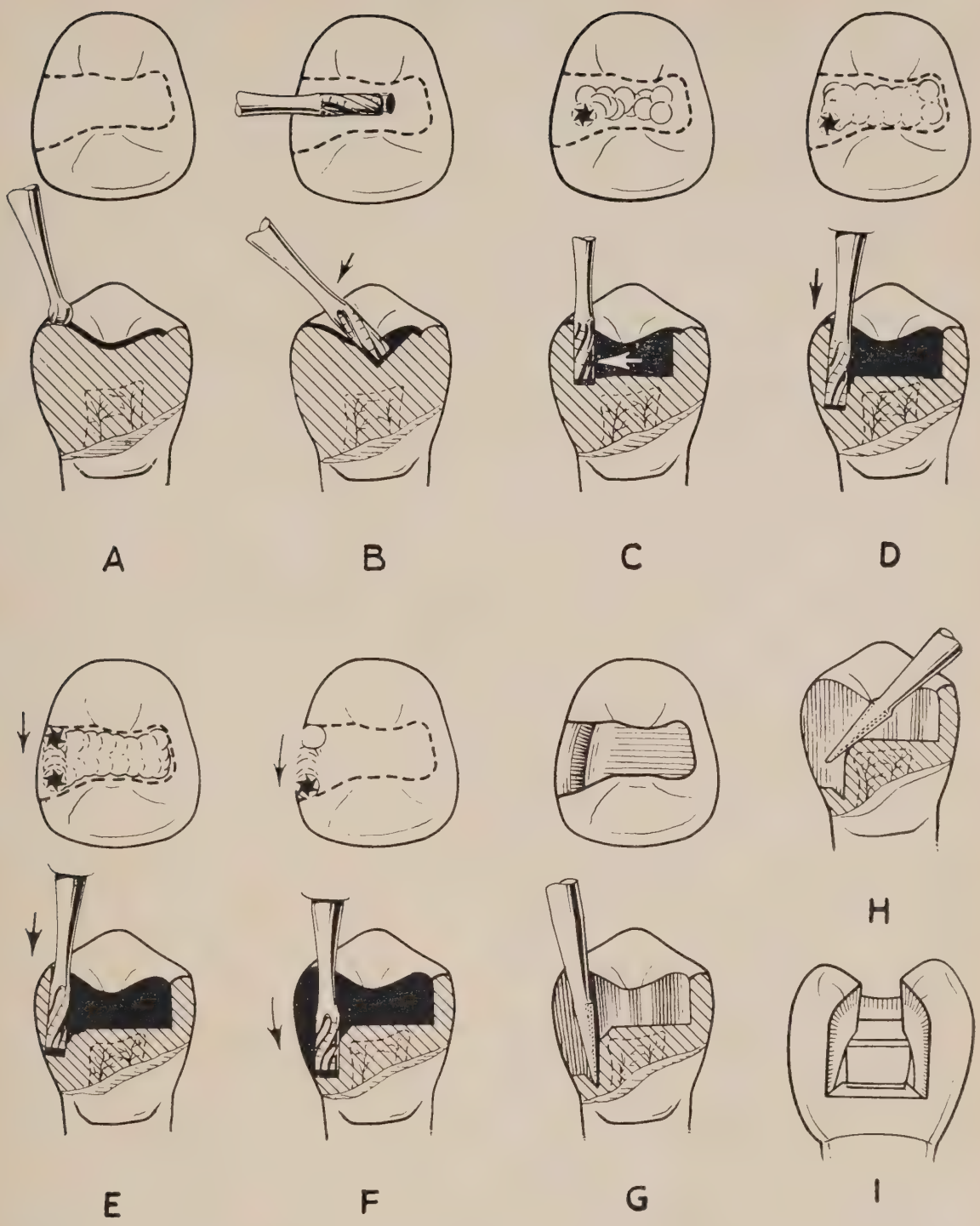

FIGURE 1 Vue occlusale et sagittale de cavités classe I, II, et M.O.D. pour amalgame. (a) Forme de la cavité tracée avec une fraise carbide no 1. (b) Pénétration de l'émail sur la face occlusale à un angle de 45° avec une fraise à fissure droite fixée à une turbine. (c) La préparation interproximale commence avec la fraise parallèle à l'axe de la dent. (d) La partie proximale en direction de la gencive, sans briser la paroi d'émail. (e) La fraise à fissure allant du lingual au buccal. (f) La paroi d'émail extérieure est maintenant brisée et la "boîte" formée. (g) Toutes les surfaces sont adoucies et les rétentions de choix placées. (h) La "marche" est arrondie. (i) Cavité terminée. (D'après: Kilpatrick: High speed and ultra speed in dentistry; Saunders.)

ou son assistante peut insérer les fraises dans leur contre-angle respectif. Les contre-angles sont fixés à un bras ajustable que le dentiste peut allonger, raccourcir, placer à gauche et à droite, etc.[3] Ces instruments, si nécessaire, peuvent être placés à deux pouces du champ opératoire. Si le dentiste n'a pas d'objec-

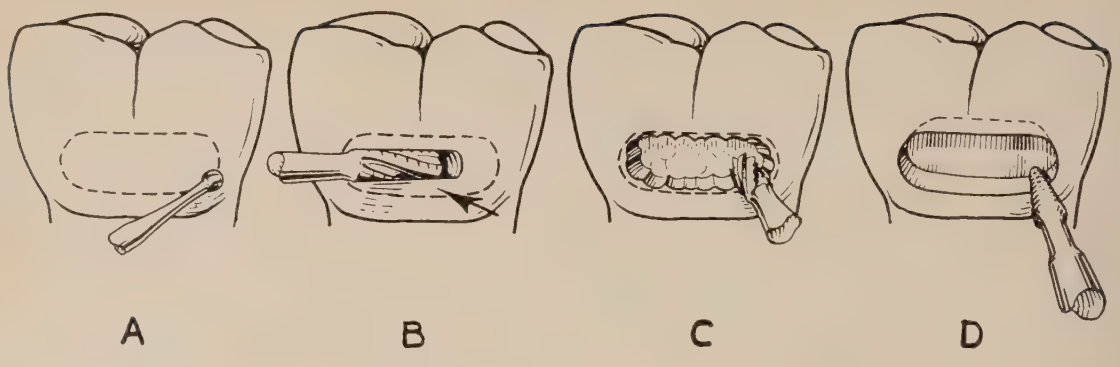

FIGURE 2 Classe V pour amalgame. (a) Forme de la cavité tracée avec une fraise ronde no 1. (b) Première pénétration de l'émail avec une fissure droite à un angle de 45°. (c) Angle de 90° pour compléter la préparation. (d) Diamant ou fraise à fissure douce 700 ou 699 pour la rétention. (D'après Kilpatrick: High speed and ultra speed in dentistry; Saunders.)

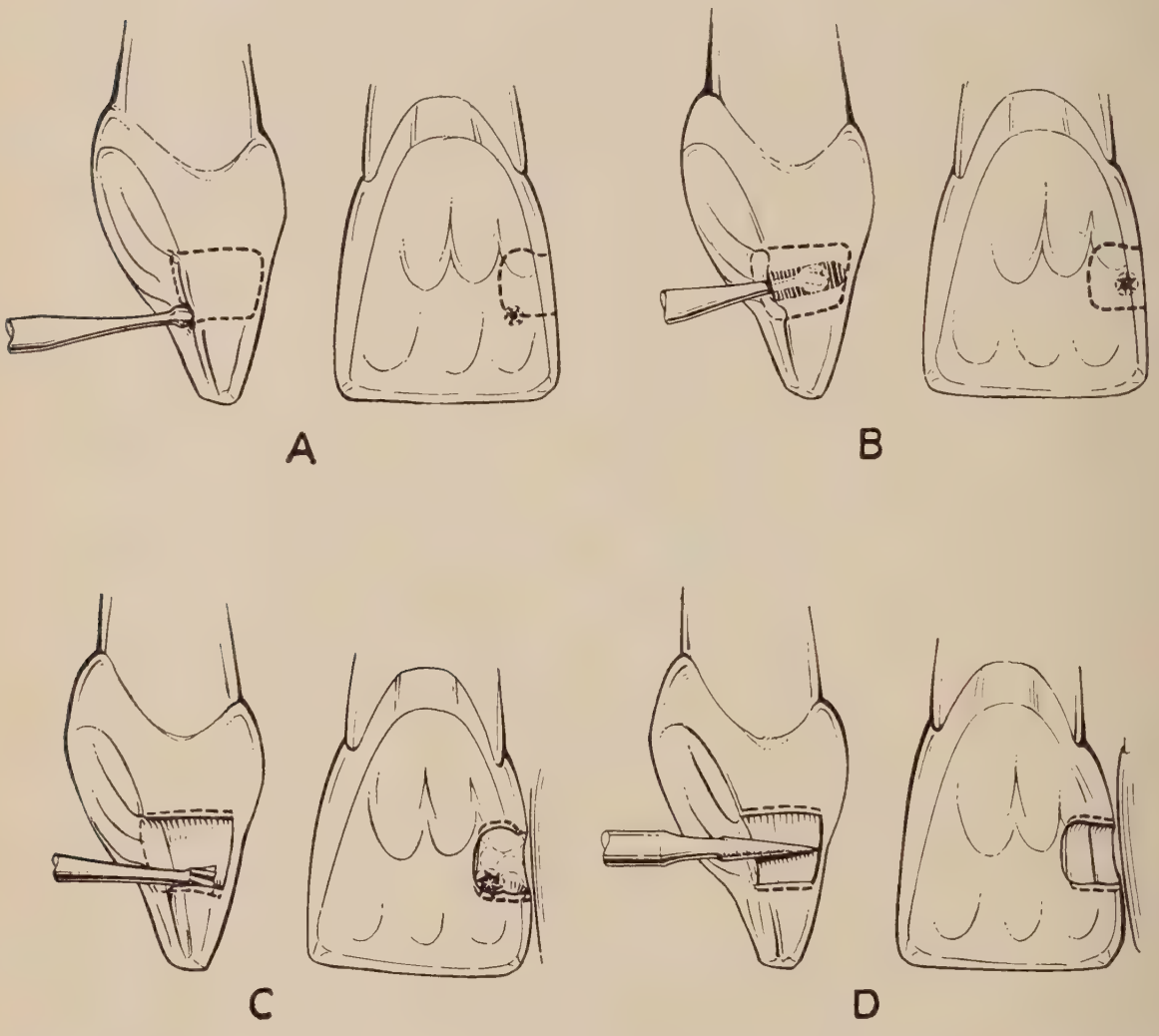

FIGURE 3 Vues interproximales et linguales de cavité classe III pour silicate. (a) Forme de la cavité tracée avec une fraise ronde no 1 si elle n'a pas de voisine. (b) Fraise no 2 pour percer l'émail et faire la préparation. (c) Rétention faite avec une fraise no 35. (d) Adoucissement final avec un diamant. (D'après Kilpatrick: High speed and ultra speed in dentistry; Saunders.)

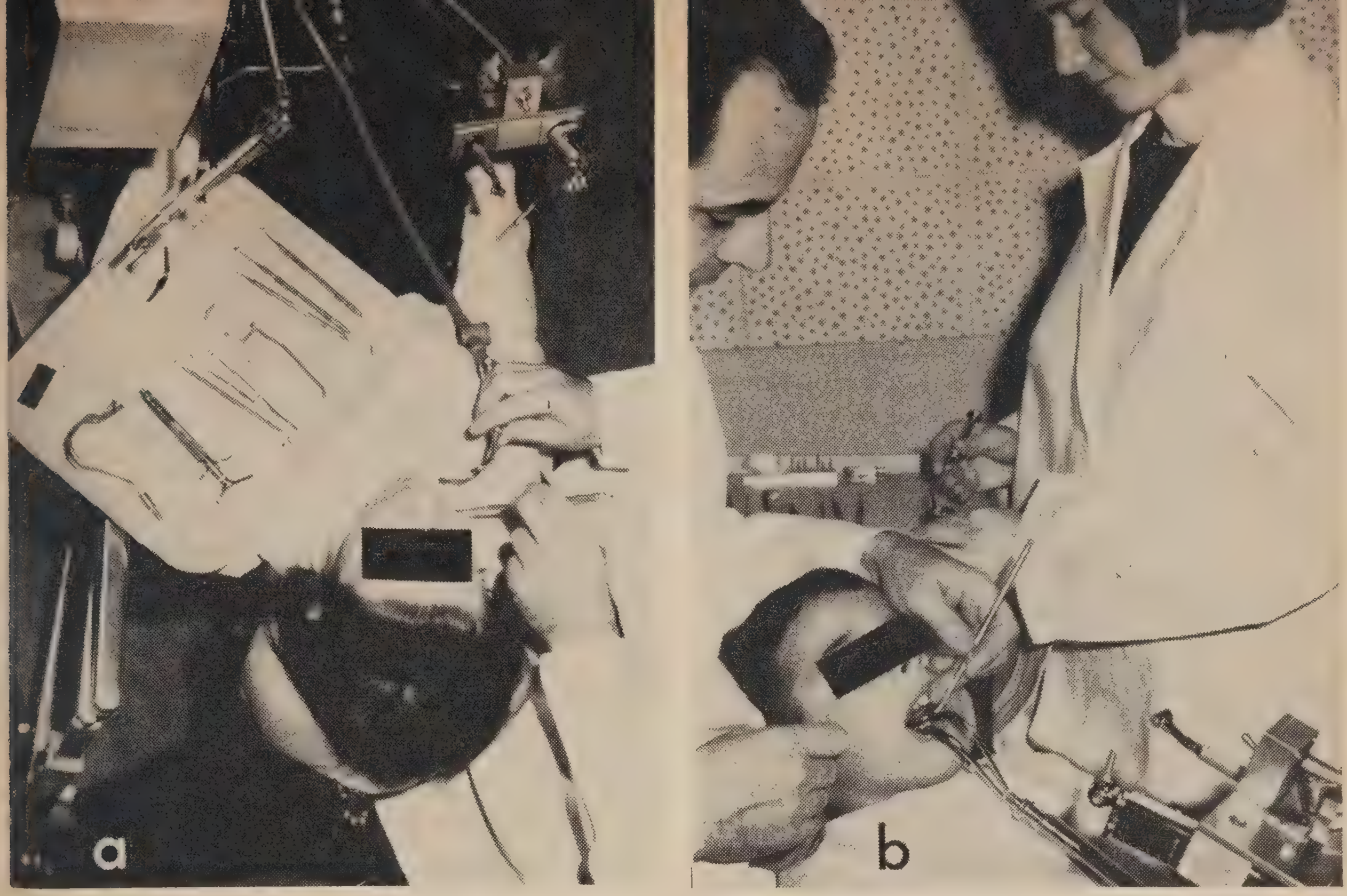

FIGURE 4 (a) Vue d'en haut, en arrière du patient. A gauche, le plateau cervical et son contenu pour le travail en cours. En haut à gauche, les moteurs pour vitesse conventionnelle et grande vitesse avec leurs pièces à main respectives qui peuvent être amenées à proximité de la main droite du dentiste. En haut à droite, le porte-instruments télescopable qui supporte une seringue combinée air-eau, turbine, pompe à salive et commutateur pour l'évacuateur rapide. (b) A noter la commodité du porte-instruments, la position de l'assistante et du plateau cervical.

tion à changer de fraises durant son travail, il peut, grâce au bon contact qu'il assure, préparer toute la cavité avec le Page-Chayes 909.

Cavité de classe V pour amalgame

Une fraise à fissure droite "Carbide", placée à un angle de 45 degré, pénètre l'émail. La même fraise à un angle de 90 degré complète la forme de cavité et sa rétention. Le Page-Chayes 909 fait ce travail. Ensuite une fraise ronde, à vitesse lente, enlève ce qui peut rester de carie (Figure 2). Un diamant peut servir à adoucir la paroi d'émail.

Cavité de classe III pour silicate

Un peu de pratique rend le contre-angle aussi efficace pour la préparation des cavités sur les dents antérieures que sur les postérieures. Surtout pour un accès lingual, le contre-angle est l'instrument de choix. Le Page-Chayes 909 sert pour tout le fraisage. Une fraise ronde du cali-

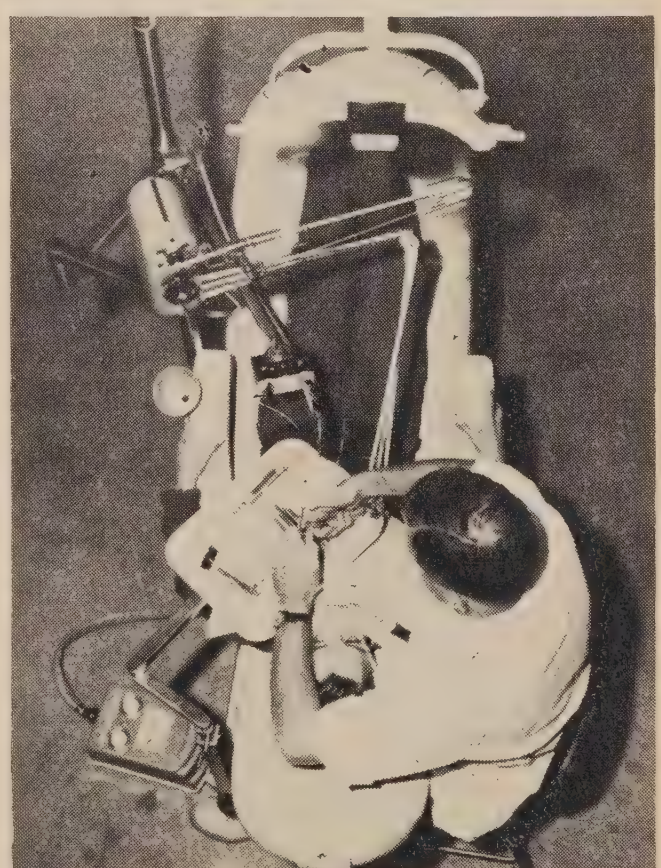

FIGURE 5 Vue générale d'en haut. Le dentiste change la fraise sans bouger, sa main gauche confortablement appuyée sur le plateau.

FIGURE 6 Le patient se sert de l'entonnoir au lieu du crachoir conventionnel qui est devenu périmé.

bre désiré, à vitesse lente, peut enlever le dernier soupçon de carie.

L'usage du rince-miroir pour l'accès lingual est presque indispensable. Il donne constamment une vue claire et nette. Placé sur le plateau cervical ou une table Mayo, le dentiste peut s'en servir sans se déplacer la tête, sans quitter le champ opératoire des yeux: tout est dans son champ de vision.[4]

Toutes les cavités peuvent être terminées au ciseau et aux curettes. Ici encore, d'un seul coup d'œil, le dentiste peut distinguer les instruments sur le plateau, surtout s'ils sont colorés. Un ruban adhésif et coloré (Minnesota Mining and Manufacturing Co., no 471 ou 190), qui résiste à l'autoclave et qui est très mince, permet au dentiste de bien tenir l'instrument.[5]

Agencement fonctionnel des appareils dentaires

Les appareils dentaires, pour opérer avec efficacité, doivent être agencés d'une manière complètement fonctionnelle. La fonction doit primer sur l'esthétique. Les appareils doivent venir au dentiste et non pas celui-ci aller aux instruments. Cet agencement fut exposé en détail dans la livraison de décembre du *Journal de l'Association dentaire canadienne:* tout monte et descend avec le fauteuil. De plus, le plateau cervical et le porte-instruments peuvent s'ajuster indépendamment et se placer là où le dentiste veut les avoir pour son travail. Un arrangement semblable élimine les mouvements du corps et les longs mouvements de bras qui sont certes fatigants lorsqu'ils sont répétés souvent. (Figures 4, 5).

Conclusion

Voici un système efficace et reposant pour pratiquer la dentisterie opératoire avec un minimum de déplacements. Le dentiste est constamment assis et ses instruments sont toujours en ligne droite devant lui. L'évacuation rapide est toujours utilisée. Cette façon de faire diminue la nécessité de cracher et aspire les morceaux d'amalgame, de silicate, etc. La bouche est toujours propre. Le patient crache surtout par besoin psychologique.[6] S'il veut absolument cracher durant le travail, il peut tenir sur lui un entonnoir relié à l'évacuateur rapide dans lequel on insère un verre de papier de rechange.

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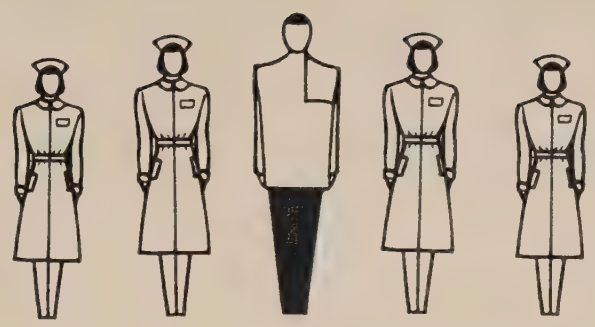
1455 rue Crescent

Auxiliaries  in operative dentistry

C. W. B. McPhail, B.Sc., D.D.S., M.S.D., Edmonton, Alberta*

The dental hygienist and dental laboratory technician contribute valuable but limited services in current operative dental practice. Wider and more effective utilization of the dental assistant will have the greatest impact on operative dentistry as presently practised. On the other hand, the more highly trained dental hygienist is the person of choice for potential expansion of duties beyond those which are presently delegated. Any proposed revision of services must respect accepted legal requirements and ethical standards. But the latter are not immutable. They must keep pace with social change.

The role of dental auxiliaries in Canada is presently undergoing considerable change. This change is accompanied by a measure of turmoil. The situation is, however, not unique, for as Hillenbrand[1] pointed out in 1960, the dental profession in many countries, through its own initiative or force of circumstances, is being compelled to review and revise its present attitude and policies on the development and duties of dental auxiliaries. Some of the circumstances related to the general changing pattern of dentistry will be considered as a preamble to discussion of the changing role of auxiliaries in dentistry, particularly in the operative field.

*Assistant to the dean and head, Department of Preventive and Public Health Dentistry, Faculty of Dentistry, University of Alberta, Edmonton.

The primary raison d'être of the dental profession is service to the society in which it exists. This philosophy is widely accepted within the profession. One only needs to look to the numerous dental briefs from all parts of Canada submitted to the Royal Commission on Health Services (1962) for supporting evidence. These reports, in addition to the general attitude usually expressed for the good of the profession, clearly demonstrate a deep concern for public demand, present and future. Awareness of and concern for a problem are requisite steps towards its solution.

The basic problem is the high incidence of dental diseases. But it cannot be separated from closely related elements such as the level of information and appreciation regarding dental services, prevention, local and national economic factors, public demand and availability of adequate services. The matter resolves itself largely into a problem of public demand and adequate supply of services. Mann refers to the nature and the urgency of the situation in these words: ". . . many close observers of dentistry's progress predict that the profession is entering one of its most critical periods. The problem is, of course, that of providing adequate dental health service to the people of this country (U. S. A.) during the next ten to fifteen years."[2] In view of recent legislation in some of the western provinces these words may reasonably be applied to the status in Canada.

Adequate is the key word here, for the supply must be adequate to meet present and future demands, not only in terms of quantity, but also in quality, geographic and economic availability, and scope (education, prevention and treatment) of services.

Public attitude and government response in the provision of tax-supported health services are pertinent considerations. The profession, in its planning, must keep the public and its representative governments fully informed. The profession must develop, maintain and warrant favourable public opinion. Good dental health cannot simply be legislated. Nor can the profession alone accomplish this feat. There must be mutually agreed sharing of responsibilities. There must be proper legislation plus the active support and co-operation of all concerned — the individual, the public, governments and the profession.

The increasing demands of organized labour and other groups for comprehensive dental health care plans present an additional concern. It has been rightly stated that "the dental profession is faced with the complex problem of planning and providing services for a rapidly changing and expanding society. If the profession is to demonstrate its willingness and capability in meeting this responsibility, it must be allowed time and reasonable freedom for planning, testing, implementing and expanding its services on a sound and orderly basis in close co-operation with governments, other health professions (teaching institutes) and other interested groups."[3] Pelton expresses the view that "none of the problems facing American dentistry is greater or more immediate than this one of achieving, in very short order, a drastic increase in the availability of dental services."[4] The Canadian Dental Association[5] in 1962 stated that although Canada's future ideal dentist to population ratio is unknown, her present dental resources are inadequate to provide the volume of dental services needed. With regard to future needs the Association said "if all dental schools in Canada (six with a freshman capacity of approximately 338 for the 1961-62 session) operated at top capacity between now and 1980, Canada's dentist to population ratio would remain close to its 1961 figure of 1:3,000. With current scientific knowledge, techniques and methods of practice, this ratio will not permit a significant increase in the volume of dental services."[5]

There can be no doubt that the dental profession is facing a critical test. Every reasonable and proper means of expanding services must be utilized.

Changing role of dental auxiliaries

One obvious and readily available field for investigation is the role of dental auxiliaries. Should this role be changed, and, if so, how much and under what conditions?

Change, if any, must be orderly, and should conform to legal and ethical principles. In the final analysis such change must be acceptable to and actively supported by the profession at large. It should be based on the principle that the profession accepts the responsibility of making available, within its means, proper and adequate dental health services, and of providing leadership and guidance in matters pertaining to the health of the public.

Despite some turmoil, a pattern is emerging. In a policy statement adopted in 1958 the Canadian Dental Association defined the relationship between dentists and dental auxiliaries in the following terms:

"In the considered opinion of the Association, the best interests of the public demand that dental care be provided under the responsibility of the one group of persons qualified by education, licensure and experience to have full regard for the dental and total health of the patient. This best interest of the public will not be served by fractionating this responsibility of the dental profession for this can lead only to a lowering of the standard of service to the patient.

"This concept requires, therefore, that all auxiliary personnel used in making dental

service available should serve as personnel integrated under the supervision or direction of a fully qualified dentist.

"The diagnosis and prognosis of dental conditions and diseases must always be the responsibility of the best qualified person, namely, the dentist. Treatment procedures must be controlled by the dentist with only such delegation of duties to auxiliary personnel as are permitted by statute and ethics."[6]

Delegation of independent authority to an untrained and unassessed group for the provision of a health service must result in deterioration of quality. Nevertheless, the use of such services by the public suggests that the profession has failed in the past to provide an acceptable alternative to meet this particular public demand. We may speculate that it is simply a matter of economics. But is it? As a profession we need to know the answer in order to plan and provide an acceptable alternative or provide positive guidance.

In a report on the present status of auxiliaries in Canada (1963) presented at the American Dental Association-Canadian Dental Association joint conference in Chicago, September 1963, MacLean explained that "by general agreement in Canada and by the announced policy of the Canadian Dental Association, the accepted dental auxiliary groups are the hygienists, the assistants and the technicians. The profession as a whole is not in favour of any additional new types."[7] Valuable and proven services have been provided by these three auxiliaries for many years. Thus it seems reasonable that the range of services of these three traditional groups should be fully explored and expanded before considering new types of auxiliaries who actually may not be required.

What duties should be performed by these auxiliaries? The Canadian Dental Association in its Brief to the Royal Commission states:

"The services that these auxiliaries are qualified to render must be included in the prescribed teaching program, and must be under the direct supervision of a qualified dentist.

"These services must not include those operations requiring the scientific knowledge of the fully-qualified dentist (e.g. case assessment (examination and diagnosis), treatment planning, cutting or severing of hard and soft tissues, the administration of drugs, the making of prescriptions) but should include many of the technical operations and technical parts of operations for which purpose auxiliary personnel has been adequately trained.

"The licensed dentist must retain full responsibility for the patient's welfare."[5]

The next question is, "what should be the individual role of these auxiliaries?"

Dental laboratory technician duties

The extra-oral services presently provided by the dental laboratory technician require a good deal of specialized technical skill and knowledge, considerable training and experience as well as costly space and equipment. These services can be performed on prescription away from the dental office and, to a degree, independent of the dentist's schedule. One technician can serve a number of dentists. It seems only reasonable that their presently accepted services should remain with this group.

Every effort should be made to encourage use of the services of the qualified and registered dental laboratory technician. As requirements for these services become more refined and exacting, revision should be made in terms of improved quality rather than expansion of duties. To this end training facilities have been made available. The profession has assisted this development and encourages technicians to utilize the facilities. In 1962 the Association of Dental Technicians of the Province of Quebec operated a formal training program; a training program was under consideration in Ontario; a training program was being developed by dental laboratory technicians in Manitoba using the University of Manitoba Faculty of Dentistry facilities and with assistance from the Manitoba Dental Association; and the two latter bodies were also assisting the training of technicians in Saskatchewan.[8] A program for training dental laboratory

technicians was initiated in a technological institute in Alberta in September 1963. This program is under the authority of the Department of Education and directed by a dentist with the guidance of an advisory board consisting of three dentists.

Dental assistant duties

The dental assistant in her present capacity as chairside assistant, receptionist, bookkeeper and office housekeeper is a valued member of the dental health team. A higher level of productivity resulting from the services of a dental assistant has been frequently reported. This increased productivity is between 35 and 50 per cent greater than that of the solo practitioner. A 30 to 50 per cent increase in productivity of every practising dentist in Canada throughout a full lifetime of practice would significantly increase the volume of dental services. Further improvement could result from the employment of additional dental assistants. This is a staggering increase in terms of the additional dentists that would otherwise be needed. If this can be accomplished through increased employment of dental assistants and by training dentists to make effective use of the dental assistant's present range of services, surely this is the line of immediate action. Meanwhile, time is provided for the investigation of additional duties which could be delegated.

A number of evening courses sponsored by the dental profession have been provided for dental assistants from time to time. However, apart from a course at the University of Toronto, which was discontinued in 1960, no university-based programs have been offered in Canada. Three formal courses were started in 1963, one in Ontario at secondary school level in Scarborough, a Toronto suburb; one in Alberta at the Northern Institute of Technology and the third in British Columbia at the Vancouver Technical Institute. In the first two the practical aspects of training and co-ordination of services are carried out in dental faculty clinics; in the last this part of training is provided in the dental clinics of a metropolitan health department.

Dental hygienist duties

Proposals for a change in the role of the dental hygienist in Canada have given rise to more controversy than those related to the other auxiliaries. Traditionally, the dental hygienist performs educational and preventive services. Briefs to the Royal Commission on Health Services repeatedly stress the need for dental health education and preventive services to complement treatment. In this regard the dental hygienist in public health and in private practice seems almost the ideal answer. If through a change of duties she becomes "treatment orientated," her impact in other fields must diminish. For this reason it seems preferable to direct and consolidate her role in the fields of education and prevention rather than expand her duties into the treatment field.

To date four universities — Dalhousie, Toronto, Manitoba and Alberta — offer training for dental hygienists. These programs are approved by the Council on Education of the Canadian Dental Association.

Auxiliaries in operative dentistry

Public emphasis on dental health and preservation of natural teeth should result in an increasing demand for the services embraced by operative dentistry. As a result, the value of a well-qualified dental laboratory technician, either in the office of the dentist or in the commercial laboratory, will increase as inlay and crown fabrication becomes more refined and exacting. It seems preferable therefore to eschew any notion of expanded duties for technicians at this time. Attention should instead be focused on (a) upgrading performance through the provision of formal training programs and short courses guided by the profession,

(b) continuing efforts to improve liaison and understanding between technicians and the profession, and (c) training at the undergraduate and postgraduate levels to promote more effective use of technicians. Surely the requirements of precision, function, occlusion, and degree of permanence warrant that all intra-oral procedures in these instances be performed by the dentist.

The dental assistant offers a wide variety of services which can contribute to more convenient, efficient and productive performance of operative dentistry. If carefully thought out, the routine services now being provided by the dental assistant form a very formidable list. In what manner might this be changed?

Presently accepted routine duties should be carefully evaluated for optimum utilization in a team approach. Those falling within the limits of the Canadian Dental Association policy on auxiliary personnel should be investigated, tested and, if found acceptable and desirable, implemented in formal training programs for dental assistants. Assessment should be on the basis of (a) potential benefits (added convenience, effectiveness, quality and productivity) weighed against the additional formal training and experience required, as well as (b) long-term overall planning and short-term gains. Other proposed duties should be objectively evaluated in the light of all related aspects — policy, legal requirements, ethical standards, training requirements, supply and demand, potential benefits, and so forth.

Four services that fit the latter category are sporadically proposed as a potential function of the dental assistant. These are administration of a local anaesthetic, dental prophylaxis, exposure of radiographs and topical application of a fluoride solution. They are contentious, but cannot be brushed aside without some thought.

Existing auxiliary personnel policy, particularly with regard to requirements for prescribed teaching programs and administration of drugs, rules out the administration of local anaesthetics by dental assistants. The knowledge, skills, experience and professional judgement required to administer local anaesthetics make this policy a matter of public interest. The administration of local anaesthetics should be the duty and responsibility of the dentist but the dental assistant should be trained to anticipate the dentist's needs and adequately assist him in this procedure.

Should the dental assistant be trained to provide a dental prophylaxis? Thorough dental prophylaxis is a valuable health service. Its proper performance requires a certain degree of background biological and technical knowledge, and a certain level of skill and experience. Obviously this degree of knowledge and level of training could not be adequately acquired in a course of one year or less along with instruction in other dental assistant duties; nor should it be given at lower than university level. Yet, if we exceed these levels of time and training, we approach the realm of the dental hygienist who is already trained to perform this service. Surely the emphasis of dental assistant training in operative dentistry, on the "team" basis, should be truly in the sense of assisting — anticipating and fulfilling the needs of the dentist. This should be supplemented by increased recruiting, training and use of dental hygienists to supply specified auxiliary services which cannot be provided by the dental assistant.

It may be that the dental assistant can be taught the techniques of exposing radiographs. But in a training course of one year or less, it is questionable if she could be expected to acquire, along with other duties, the biological and technical knowledge necessary to learn, respect and routinely avoid the potential hazards associated with radiation exposure. It is primarily a question of carefully balancing the expected benefits against the potential health hazard and the additional time and level of training necessary to

assure the safety and wisdom of such a step. It is also a question of effective routine and procedure. The dentist can make his preliminary oral examination, take radiographs, take impressions for study models if required, and perform a prophylaxis in an unbroken sequence. The dental assistant can assist in all these procedures. A dental hygienist, if present, can take over after the preliminary examination by taking radiographs, providing dental prophylaxis and dental health counselling. If a hygienist is not available to provide these services apart from the dentist, would the expected gain warrant breaking the sequence of services efficiently provided through a dentist-dental assistant team?

Topical application of fluoride solutions following dental prophylaxis presently is time-consuming. It requires care and, in a number of instances, the ability for patient management. Emphasis on education and prevention will likely increase the demand for this service. And it is probable that the services of a dental hygienist will not be available in many practices for a considerable time in many parts of Canada. Should this service then be added to the duties of the dental assistant? Again there arise the questions of training and office efficiency through team work. Would the expected benefit warrant the additional time and training required to assure generally a proper service being provided? Would this development fit into the current pattern and policy which emphasize team approach with each team member performing only those duties for which he is adequately trained? The potential contribution of the dental assistant to routine dental health education should not be overlooked in any discussion of her duties.

The services of the dental hygienist include the exposure of radiographs, impressions for study models (in certain provinces), dental prophylaxis, topical application of fluoride solutions, and dental health education. Her contribution to preventive dentistry should be emphasized and expanded.

Under existing conditions and current patterns of dental practice, the dental hygienist and the dental laboratory technician have valuable but limited services to contribute in the operative field. From the standpoint of variety, efficiency, quality and productivity, the dental assistant has the greatest potential in the field of operative dentistry if present circumstances prevail.

On the other hand, the more highly trained dental hygienist is more readily amenable to additional specific training. She constitutes a reservoir for expansion of duties and responsibilities in operative dentistry should circumstances warrant such action.

This premise is supported to a degree by the experience of Baird et al[9] in the training and employment of military auxiliary dental personnel (primarily clinical technicians who are the military counterpart of the civilian dental hygienist). Their preliminary report is indicative of the potential, but requires much further study, particularly in regard to civilian situations. Two dicta should be observed. We should not rush in. But, as Pelton has aptly stated, neither can we refuse "to regard current dental education practices as a sacred ritual which it is heresy to change. Instead, we must realize that when change is beneficial, change should be made."[4]

Summary

The role of auxiliaries in any field of dentistry must be considered in relation to changing patterns of practice and the overall part auxiliaries are to play.

The three accepted dental auxiliaries in Canada are the dental laboratory technician, the dental assistant and the dental hygienist. Their respective duties and responsibilities should be carefully reviewed, tested, revised, and fully expanded and utilized before any new types of auxiliaries are considered.

Any proposed revision of services must respect accepted legal requirements and

ethical standards. But the latter are not immutable. They must keep pace with social changes and reflect the best thinking of the time.

The profession must provide leadership and guidance for the expansion of formal training facilities for auxiliary personnel. Appreciation for and integration of the services of dental auxiliaries must be encouraged and taught by experience at undergraduate and postgraduate levels, with emphasis on undergraduate training.

Under existing conditions and current patterns of dental practice, the dental hygienist and the dental laboratory technician contribute valuable but limited services in the operative field. The dental assistant offers a great variety of services which contribute to efficient operation and increased productivity. A more general and effective use of her services will have the greatest impact in operative dentistry under present conditions.

On the other hand, the more highly trained dental hygienist is the person of choice for potential expansion of duties beyond those which are presently delegated, particularly if circumstances should require and warrant such expansion.

Expansion of duties for dental auxiliaries must be based on sound review, research, evaluation and application. Such action must be tempered with caution and courage.

Résumé

L'assistante dentaire et le technicien apportent une collaboration précieuse — limitée, il est vrai — au travail de dentisterie opératoire. En utilisant davantage et à bon escient les services de l'assistante dentaire, on peut augmenter et améliorer l'exercice de la dentisterie opératoire tel qu'il est pratiqué aujourd'hui. Par ailleurs, l'hygiéniste dentaire, qui a recu une meilleure formation, a les qualités nécessaires pour qu'on étende les fonctions qui lui sont actuellement dévolues. Toute revision des services doit se conformer aux textes de loi et aux standards d'éthique professionnelle. Mais ceux-ci ne sont pas immuables: ils doivent s'adapter aux changements sociaux qui se produisent.

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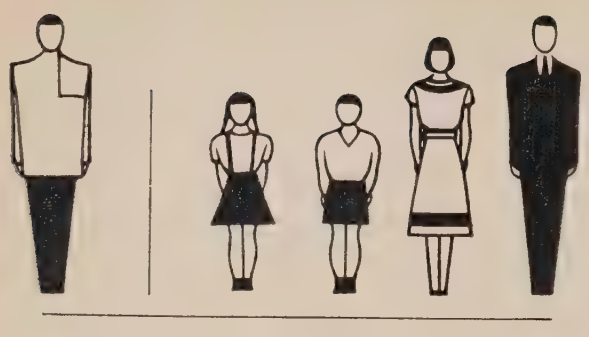
University of Alberta



The value to both the dentist and the public of increased utilization of dental auxiliaries is discussed. The dentist could be relieved of the mechanical procedures of tooth restoration by delegating these duties to supervised dental auxiliaries. He would then be free to treat a larger number of patients in less time and at a lower unit cost.

Operative dentistry: mechanical procedure or health service

J. D. Purves, D.D.S., Toronto, Ontario

The dental profession exists for the benefit of the public and not for the pecuniary advantage of its own members. Within this context dentistry's claim to being a health service can be judged in terms of the social acceptance and the availability of dental services. Dentist to population ratios that range from 1:1,400 (Israel) to 1:283,700 (Indonesia)[1] are a partial reflection of this acceptance and need. Obviously dentistry's status as a health service varies considerably in different parts of the world. The scope of operative dentistry provides another facet of this status. When restricted to physical restoration of teeth to function and form, operative dentistry is just another technical discipline. Only when the dentist gives equal consideration to the health of adjacent organs and structures and to the physical, mental and social well-being of the total patient can operative dentistry justify its claim as a true health service.

Under the aegis of provincial government, the dental profession is granted the privilege of registering, licensing and exercising disciplinary control over its members through representative boards of dentists elected by dentists and working within the framework of the respective provincial dentistry acts. This arrangement has facilitated the unfettered development of Canadian dentistry to its present scientific level in slightly less than 100 years. Seldom has direct interference come from any of the governments concerned. But on the other hand, in spite of the efforts of the profession, belated expansion of dental educational facilities has not kept pace with our growing population. This has resulted in a worsening of the national dentist to population ratio. And continuing population growth, coupled with increasing awareness and demand for dentistry as a health service, strains our dental manpower resources to the limit.

Health, according to the World Health Organization, is defined as "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity." From the standpoint of dental disease alone, Canada obviously has a long road to travel before this objective is realized. To this end the nation's dental health problems must be attacked simultaneously from many directions. We must harness every available means to

reduce the incidence of preventable dental disease. Researchers must regard the search for additional preventive and control measures as their foremost task. Public health dentists and private practitioners must press for the widest application of available preventive measures, including oral hygiene practice, fluoridated water, dietary and sound health habits, and the restoration of carious teeth. On top of this combined effort we will need more hands to meet the increasing requirements for dental care during the years that lie immediately ahead.

Not so many years ago the dentist was the sole purveyor of dental services. Then came the dental assistant who quickly demonstrated her value by substantially reducing the attention which the solo dentist formerly devoted to duties that could be delegated. Increasing demand for services gave further impetus to the dental team concept. Productivity increased when the dentist concentrated on chairside procedures and delegated mechanical phases of appliance fabrication to a capable dental laboratory technician. The value of prevention through regular prophylaxis, and radiographic and clinical examination hastened the advent of the dental hygienist. Her duties were quickly augmented to include oral hygiene instruction and topical application of fluoride. A growing number of practices have latterly begun to utilize a dental receptionist-cum-roving assistant to expedite services to patients. The profession has benefitted immensely from the addition of these auxiliaries because dentists can thereby extend their services to more people. The potential scope of dental practice has been widened where the dentist, supported by competent auxiliaries, is no longer overwhelmed with requests for emergency or terminal treatment. Our patients and society in general have benefitted similarly. Yet, in spite of this, many practitioners still do not avail themselves of these auxiliaries. It is not as if the public refused service at the hands of auxiliaries. Indeed, there is ample evidence to the contrary. Therefore it is the profession's duty to utilize auxiliaries to the maximum extent. Failure to do so incurs the risk of introduction of new independent types of sub-professional personnel with consequent fragmentation of dentistry.

Prominent in contemporary dentistry are the many repetitious "mechanical" procedures presently performed by the dentist. The adaptation of all restorative media to the prepared cavity surface is a case in point. Application of the rubber dam, impressions for inlays, crowns, bridges and final cementation of these restorations represent further examples of mechanical procedures. These tasks do not require an intimate knowledge of biological processes. There is no valid reason why they cannot be performed by properly qualified and supervised dental auxiliaries of lesser training than that of the dentist provided the latter retains responsibility for the services rendered. To be sure diagnosis, treatment planning, surgical preparation of tissues and hard tooth surfaces to receive the restoration, anaesthesia, and modification of deep cavities with accompanying treatment of dentine and pulp do not fall into this category. These procedures require the knowledge and experience of the fully trained dentist. They must remain within the purview of the qualified practitioner. But the point I wish to emphasize is this: although we have made notable progress in the utilization of dental auxiliaries, there is ample scope for further development in this direction. In the immediate future we must strive to harness the potential offered by dental auxiliaries in support of mechanical procedures inherent to operative dentistry. An effective solution to these problems could further enhance our ability to serve more people with economical advantage to patient and profession alike.

Anyone who doubts the practicality of such a solution need merely refer to the preclinical technique course in cavity and crown and bridge preparation presented to second-year dental students at the Uni-

versity of Toronto. These procedures are taught within a 200-hour period. From this point the student then proceeds to treat the patient. Indeed, at the University of Toronto, it has been demonstrated that as many as two-thirds out of a class of 124 have advanced to provide treatment for patients within less than 200 hours. Obviously a 50- to 75-hour program concentrated on the mechanical phases only could very well accomplish proportional results with auxiliary students of average intelligence and digital skill. If these duties were to fall to the trained dental auxiliary, valuable curriculum hours would be liberated for other important phases of undergraduate instruction.

Sponsorship by the profession of suitably qualified dental auxiliaries could have other useful consequences. We are told that automation in the United States abolishes 50,000 to 75,000 jobs each week. Undoubtedly the same thing happens in Canada. Meanwhile the population explosion contributes daily to an already overcrowded labour market. Witness the depletion of our unemployment insurance fund.[2] What better contribution can we make to society than by opening up new fields of productive employment for dental auxiliaries?

Benefits would also accrue to the patient. Let us take the gold inlay, regarded by most dentists as the peer of all restorative media when employed in the restoration of multiple tooth surfaces. Unfortunately, initial cost in terms of treatment time and material tends to label the inlay as a luxury for many patients. Yet, by comparison with the frequent necessity for replacement of amalgam in similar situations, this need not be so. Furthermore, present impression techniques and precise casting control measures should permit economical restoration of deciduous or permanent teeth with multi-surface inlay restorations. With bite registrations recorded by the dentist, impressions in cementation effected by the dental auxiliary, and the inlay fabricated by the dental laboratory technician, there is no reason why these more permanent restorations should not be just as economical as amalgam restorations. The foregoing should not be misconstrued as licence for the indiscriminate use of gold restorations. The choice of restorative material must still be predicated on biological, mechanical and aesthetic requirements as well as economical considerations.

Nowhere is our exaggerated concern for mechanical values better illustrated than in the slavish adherence to antiquated licensing examination procedures of some provincial dental jurisdictions. No other profession requires candidates to demonstrate their technical ability by erecting, say, a bridge, performing a surgical operation or designing a building. Yet some dental licensing examinations still require that teeth be restored, bridges constructed and dentures fabricated, even though a candidate may just have completed a four-year undergraduate course in a recognized dental school accredited by the Canadian Dental Association. Surely the prime purpose of licensing should be to establish whether or not the candidate possesses the minimum standards for practice within the circumscribed jurisdiction. The need for more mature thinking in this field is long overdue.

Existing fee schedules also bind us to this mechanical frame of mind because the majority ignore or barely mention preventive services, diagnosis and treatment planning — the very core of any health service. The fragmentation of dental care into a series of mechanical procedures perpetuates this trend, particularly with respect to operative dentistry. The existence of a fee schedule is certainly a necessity in view of current interest in prepaid dental care on the part of governments, trade unions and insurance companies. But blind adherence to arbitrary fee structures without due regard for the relative value (time, skill, knowledge, judgement, responsibility) of the services encompassed will continue to hinder the profession from exercising required leadership in the promotion of pre-

paid dental care. The development of a relative value fee system should do much to overcome this block.[3]

Some speculation on the future conduct of dental practice is appropriate at this point. Let us assume that through widespread adoption of mass preventive and control measures we effect an appreciable reduction in the incidence and prevalence of dental caries. There will then remain a residual of dental caries as well as the almost untouched problems of periodontal disease and malocclusion to claim our attention. But that is not all. Only one-third of our people now receive dental care of any kind. It is safe to assume that the other twelve million Canadians will not be content to remain perpetual second-class citizens with respect to dental care. Already there are clear indications of growing demands for dental services from this segment of society, demands from people who feel that they are just as entitled to this care with dignity — not charity — as their more fortunate fellow citizens. As requests for services increase dental practice must be modified in order to provide more expeditious service more cheaply. Of necessity this calls for multiple use of dental auxiliaries, extended duties for these auxiliaries, suitable accommodation for the entire dental team, simplified dental equipment and more efficient patient record systems. Several advantages will accrue to the dentist. No longer will he be plagued by the drudgery of having to perform tedious and repetitive mechanical procedures. Instead, he will marshal his knowledge, skills and judgement to direct treatment for a larger number of patients. Freedom to perform those aspects of treatment for which he has been trained will result in greater personal satisfaction for the dentist. Continuity of service to patients and continuity of income will no longer be as vulnerable to incapacitation of the dentist in this type of practice.

Such a vision of future dental practice is certainly not devoid of risks — risks associated with personnel management problems, risks inherent in the delegation of duties to dental auxiliaries, and risks associated with some degree of loss of personal contact between patient and dentist. However, parallel experience in the medical and legal professions suggests that these are not insuperable problems. Besides, is there ever any progress without hazard? As Sir Thomas Bacon once wrote so aptly:

> "If any man begin with uncertainties
> He shall end in doubts,
> But if he be content to begin with doubts
> He shall end with certainties."

Summary

Operative dentistry will never be a true health service as long as dentists remain absorbed in the mechanical details of restoration of teeth and as long as a substantial number of Canadians are deprived of access to dental care of any kind.

Dental practice must be modified to provide more expeditious service to more people at a lower unit cost. One way of achieving this is by increased utilization of dental auxiliaries. Despite progress in this field there is ample scope for further delegation of mechanical procedures to qualified, supervised dental auxiliaries. The dentist, in turn, should be free to direct treatment for a larger number of patients and to perform those aspects of treatment for which he is trained.

Résumé

La dentisterie opératoire ne constituera jamais un vrai service de santé tant que les dentistes ne se préoccuperont que des aspects techniques de la restauration des dents et aussi longtemps qu'un grand nombre de Canadiens ne pourront pas se donner des traitements dentaires de toutes sortes.

Il faut modifier l'exercice dentaire pour prodiguer à la population des soins plus rapides et à meilleur coût.

Une façon de réaliser cet objectif, c'est d'utiliser davantage les services auxiliaires. Malgré des progrès marqués dans ce domaine, il y aurait lieu de déléguer encore plus de fonctions techniques à des assistantes qualifiées qui les exécuteraient sous la responsabilité du dentiste. Le dentiste, par ailleurs, serait plus disponible pour diriger les traitements pour un plus grand nombre de patients et pour accomplir des tâches pour lesquelles il a été formé.

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170 St. George Street

L'urgence dans le cabinet dentaire

par Guy Maranda, D.D.S., Danville, Pennsylvanie*

The author describes procedures to deal with emergencies that may arise in the dental office. These range all the way from syncope, through sudden haemorrhage and operative accidents, to sudden death resulting from local anaesthetic agents or coronary occlusion.

Recommendations are given for the employment of local anaesthetic solutions and vasopressor agents. There follows a discussion of shock, its causation and immediate treatment.

Toute discussion des cas d'urgence dans le cabinet dentaire est impopulaire, car nous avons tous été entraînés à employer des méthodes très sûres dans le traitement du patient. L'emploi répété de ces méthodes nous a donné beaucoup de confiance en celles-ci. Cependant, nous avons tous expérimenté des incidents inusités que l'on peut qualifier d'urgence.

Ces incidents ont une très grande latitude et varient d'une syncope chez le patient qui attend pour se faire examiner, à l'hémorragie soudaine due à l'injection d'agents anesthésiques ou à une occlusion coronaire.

Ce sujet est évidemment très complexe; toutefois, dans les paragraphes qui suivent, l'auteur tente de souligner une méthode permettant d'éviter ces cas d'urgence. Un meilleur diagnostic, une grande connaissance des médicaments employés et une responsabilité accrue avec les collègues permettra d'appliquer les soins d'urgence nécessaires dans ces cas.

Cependant, le vieux principe de traiter le trouble en l'évitant est merveilleux, mais inutile, quand l'urgence est un fait accompli. Toutefois, l'expérience enseigne la possibilité d'anticiper le trouble et aussi les diverses étapes servant à minimiser les risques chez nos patients. Ceci s'accomplit presqu'automatiquement si le praticien garde toujours à son esprit un très grand degré de méfiance quant au statut physique de son patient et aussi quant à son diagnostic des maladies localisées. Aucun d'entre nous ne voudra entreprendre, sans aucune consultation et certaines précautions, l'extraction d'une dent chez un patient de cinquante ans qui a déjà eu quelques infarctus; de même que dans le cas d'avulsion d'une troisième molaire qui a des racines protubérantes dans le sinus du maxillaire, sans avoir la précaution d'être préparé à corriger la fistule ainsi formée par un lambeau muqueux provenant du palais. Seul, un très grand degré de méfiance est nécessaire pour reconnaître l'urgence avant qu'elle ne se produise.

*Résident en chirurgie buccale, The Geisinger Medical Center.

Evidemment, un examen médical fournit l'évidence d'un incident dans le cas d'un patient avec des troubles cardiaques; des radiographies pré-opératoires révèlent la possibilité d'une fistule "oro-antrale" chez le patient ayant au maxillaire supérieur une troisième molaire incluse ou cariée.

La prévention de complications et d'état d'urgence est de prime importance et une histoire médicale est un instrument très essentiel pour celui qui traite des patients. L'histoire n'a pas besoin d'être détaillée pour être de prime valeur; certains signes doivent nous pousser à consulter d'autres collègues dans des cas spéciaux. En résumé, l'histoire doit discerner le patient "malade" et dicter la règle de retarder toute opération chez ce patient jusqu'à ce que la maladie soit complètement diagnostiquée et révélée à l'opérateur.

Nous savons l'importance et les avantages d'une très bonne histoire médicale et il serait bon d'en résumer certaines techniques d'interprétation telle qu'elle s'applique aux patients dentaires.

Un plan général d'histoire de cas est ici schématisé en vue d'indiquer au dentiste et au chirurgien buccal, les maladies constitutionnelles qui peuvent compliquer ou changer le cours de son traitement et aussi en vue de protéger le patient contre toute erreur de diagnostic et par le fait même de traitement.

Histoire de cas

1. Plainte principale du patient;
2. Histoire de la présente maladie;
3. Etat de santé: maladies sérieuses (diabète, fièvre rhumatismale, tuberculose), blessures et opérations antécédentes, hospitalisation et raisons, médicaments;
4. Revue des systèmes;
5. Examen complet de la cavité buccale;
6. Examens de laboratoire: sang, urine, poumons (radiographie);
7. Diagnostics différentiels du cas présent;
8. Plan de traitement opératoire: anesthésie (locale, générale), hospitalisation, consultation.

Les complications anesthésiques dans le cabinet dentaire

Le seul but d'un agent anesthésique local est de produire l'insensibilité d'une partie spécifique du corps. Toute déviation de cette définition dans la localisation de l'anesthésie résulte en une complication due à la mauvaise insertion de l'aiguille ou à l'injection de la solution. L'auteur veut maintenant discuter suivant la classification de Monheim[1] (1) les complications dues aux solutions anesthésiques, (2) les complications dues à l'insertion de l'aiguille.

Les complications dues aux solutions anesthésiques sont: toxicité; idiosyncrasie; allergie; réaction anaphylactique; infection due à une solution non stérile; réaction locale des tissus.

Les quatre premières réactions naissent d'une réaction organique après l'absorption dans le courant sanguin. Les deux dernières sont dues à des réactions locales ne dépendant pas de l'absorption.

Les complications dues à l'insertion de l'aiguille sont: perte de connaissance; trismus; douleur; oedème; infection; bris d'aiguille; anesthésie prolongée; hématome; formation d'escarres; symptômes neurologiques bizarres.

Nous traiterons, en premier lieu, des complications dues aux solutions anesthésiques.

Les réactions toxiques sont liées à l'emploi d'une trop grande quantité de solution. Les patients réagissent d'une façon normale à cet acte, même si les agents accomplissent leur propre action pharmacologique.

Les réactions sont systémiques et dépendent de la pénétration de quantités suffisantes de solution dans le courant sanguin pour affecter les systèmes nerveux central, respiratoire ou cardio-vasculaire. Ces systèmes semblent très sensibles à ces solutions; cependant, avant que les drogues soient suffisamment concentrées dans le système sanguin pour produire des réactions toxiques, il faut que le taux

d'absorption soit plus grand que le taux de détoxification, d'hydrolysation et d'élimination. Evidemment, l'injection directe d'une solution anesthésique dans le courant sanguin produit une concentration maximum en une période minimum et, par conséquent, l'effet maximum se produit chez le patient. L'usage ordinaire de ces agents ne produit pas cette complication, car les taux de détoxification et d'élimination sont plus bas que le taux d'absorption; de ceci découle donc la règle de sûreté.

Il est reconnu que le taux toxique dans le sang dépend de quatre facteurs: (1) administration de quantités énormes; (2) administration intra-veineuse; (3) détoxification très lente; (4) élimination lente.

Puisque la dose est le seul facteur contrôlable par l'opérateur, on peut supposer que l'usage de la plus petite quantité nécessaire pour produire l'effet désiré est indispensable. Naturellement, il est impératif de connaître les effets pharmacologiques de ces substances en vue de ne pas dépasser la limite permise.

Des auteurs ont publié différentes tables de toxicité et de dosage. Celles-ci semblent démontrer une étroite relation entre la toxicité et la puissance. Le facteur toxique serait celui qui produit l'anesthésie désirée. En employant ces drogues anesthésiques, nous travaillons avec des poisons.

Un tableau comparatif des valeurs toxiques et des doses place habituellement la procaïne comme l'agent qui sert de comparaison. La toxicité et la puissance absolue de même que la toxicité relative sont ensuite comparées à la procaïne. Tel que décrit auparavant, il y a une étroite relation entre la puissance et la toxicité et de ce fait, une relation immense quant à la dose. La tetracaïne (Pontocaïne), par exemple, a une action dix fois plus puissante que la Procaïne et, de ce fait, est donc dix fois plus toxique. Toutefois, elle est non moins toxique bien qu'employée en dose moins de un dixième que la procaïne. La lidocaïne (Xylocaïne) semble démontrer une puissance accrue sans augmentation correspondante dans la toxicité absolue. Elle est relativement plus toxique que la procaïne due à la grande quantité exigée. La dose recommandée varie suivant les auteurs et les conditions d'usage. Pour le patient ambulant, selon Monheim, pas plus que 400 mg. de procaïne ou 20 ml. de solution à 2 pour cent. Harris[2] croit que l'adulte normal peut absorber 2,800 mg. ou 140 ml. d'une solution à 2 pour cent. La dose employée en dentistrie doit donc avoir une marge de sûreté très grande même pour le patient souffrant d'idiosyncrasie.

Une absorption trop rapide dans l'injection intra-veineuse joue un rôle dans les réactions toxiques. Adriani[3] montre que l'emploi de fortes concentrations est le résultat d'une plus grande concentration dans le courant sanguin et que l'injection rapide de la drogue provoque une plus grande absorption. L'infusion intra-veineuse rapide provoque une très grande concentration tandis que l'injection lente ne donne pas une concentration élevée puisque la drogue est détruite par un procédé enzymatique dans le courant sanguin aussi tôt après son injection. Le même auteur démontre aussi que le taux d'absorption d'un agent anesthésique local est diminué avec l'usage d'un agent vasoconstricteur; par exemple, la toxicité de la procaïne est diminuée de 30 pour cent si on l'emploie avec l'épinéphrine à un taux de 1:100,000.

On a observé des procédés très lents de détoxification dans le courant sanguin dus à des raisons inconnues ou à des maladies du foie; alors, dans ce cas, l'injection très lente d'une dose réduite est recommandée.

Une élimination lente des produits par les reins peut aussi contribuer à des réactions toxiques; dans le cas de maladies rénales, une très grande vigilance est aussi recommandée.

Symptômes de toxicité

Les premiers symptômes de la toxicité sont: stimulation du système nerveux central, loquacité, excitement, appréhension, augmentation du pouls et de la pression

sanguine; des convulsions sont notées par la suite. Cette première stimulation est suivie d'une dépression qui se manifeste par une chute de la pression artérielle, un pouls rapide et faible (parfois lent), apnée ou modification de la respiration. La perte de connaissance donne suite à cette dépression du système nerveux central et la mort résulte de l'hypoxie et de la dépression cardiaque.

Traitement.—La surdose toxique doit être traitée sur le champ; chaque patient est sous observation pendant et après l'administration lente de la drogue. La plupart des réactions sont immédiates et transitoires ne requièrent pas de traitement. Cependant, si les symptômes sont graves, avec convulsions, on doit administrer par voie intra-veineuse un barbiturique à courte action, en dose nécessaire pour contrôler les convulsions. Après cette injection, le patient est profondément anesthésié et on peut même avoir besoin d'un appareil de respiration à pression positive pour fournir l'oxygène nécessaire. La réaction toxique est généralement terminée quand le patient a subi l'effet de l'anesthésie générale. Même en l'absence de convulsion, l'administration d'oxygène peut s'avérer nécessaire dans un cas de dépression respiratoire. Dans des cas spéciaux, une chute de la pression sanguine, un pouls lent, de la pâleur et une sueur froide indiquent un état de "choc;" ceci requiert l'infusion de 5 pour cent glucose dans une solution 0.25 pour cent saline avec un agent vaso-presseur tel que phenyléphrine (Néo-synéphrine).

Prévention des réactions toxiques

1. Evaluer adéquatement le patient avant tout acte opératoire: ne pas opérer de patients "malades;" ne pas se servir d'anesthésie locale sur des patients qui ont peur;
2. Employer un agent vaso-constricteur pour réduire le taux d'absorption;
3. Employer la plus petite dose possible;
4. Employer la plus faible concentration;
5. Injecter lentement;
6. Aspirer avant d'injecter;
7. Eviter d'injecter une dose complète en un seul endroit;
8. Donner une pré-médication contenant des barbituriques avant d'injecter une grosse dose.

Les agents vaso-constricteurs ont pour propriété de: (1) Diminuer la toxicité en réduisant l'absorption; (2) Prolonger l'anesthésie; (3) Permettre l'emploi de plus petite dose; (4) Produire un état plus profond d'anesthésie.

Toutes les drogues anesthésiques, sauf la lidocaïne, la butethamine (Monocaïne) et la mepivacaïne (Carbocaïne) sont des vaso-dilatateurs et ceci aide à leur absorption dans le courant sanguin. Une augmentation de concentration de 2 pour cent à 4 pour cent de procaïne produit une plus courte anesthésie, puisque la drogue est absorbée plus rapidement.

Idiosyncrasie

Cette réaction, qui se manifeste par des symptômes bizarres suivant l'administration de petites quantités d'une drogue, est habituellement connue des patients qui l'ont expérimentée et on doit croire ces patients. Cependant, les pusillanimes mentionnent cette réaction plutôt que d'admettre leur peur; dans chacun de ces cas, l'on doit s'abstenir de toute anesthésie locale.

Allergie et réaction anaphylactique

Cette condition est rare; on la rencontre dans la proportion de 1 pour cent. Elle se définit par une hypersensibilité spécifique après un premier contact avec la drogue. Dans ce cas, on voit l'importance de l'histoire médicale car les tests de dermo-réaction sont presque sans valeur. Ces réactions sont rares, graves et souvent fatales. Le mécanisme exact est inconnu mais il appartient probablement à un changement dans le métabolisme cellulaire. Comme traitement, on injecte un antihistaminique, tel que le Bénadryl, 50 mgs, intra-musculaire à toutes les quatre heures ou l'Epinéphrine 1:1000 intra-musculaire de 0.3 à 0.5 ml.

Les complications dues aux drogues vaso-constrictrices

Ces réactions (palpitation cardiaque, tachycardie, hypotension, maux de tête) ne sont pas graves, ni dangereuses; l'emploi de faible concentration les préviendra.

Réactions locales dues aux solutions

1. Infection due à la contamination des solutions;
2. Stérilisation à froid des aiguilles;
3. Injection de la mauvaise solution, telle que péroxyde ou alcool.

Complications dues à l'insertion de l'aiguille

Perte de connaissance. — Choc neurologique — anémie cérébrale. Arrêter toute opération, placer le patient en position de Trendelenburg, donner de l'oxygène, prendre les signes vitaux: pouls, respiration et pression; observer le patient. Si le patient devient cyanosé, pâle avec tachycardie, bradycardie, pouls irrégulier ou faible, si les battements cardiaques sont faibles, une sérieuse occlusion coronaire se produit; donner de l'oxygène, conserver un intra-veineux et demander de l'aide.

Trismus. — Traumatisme musculaire dû probablement à une hémorragie ou à une infection. Traiter en conséquence.

Douleur. — Le traumatisme, les aiguilles émoussées et l'infection en sont autant de causes.

Oedème. — L'oedème est souvent associée aux causes déjà mentionnées.

Infection. — L'infection est évitée en employant des méthodes stériles.

Bris d'aiguille. — Eviter la force et les mouvements brusques; éviter de plier les aiguilles; employer de longues aiguilles.

Anesthésie prolongée. — L'anesthésie prolongée est souvent causée par un traumatisme neurologique ou une hémorragie périneurale.

Hématome. — Le seul traitement consiste à réassurer le patient.

Symptômes neurologiques bizarres. — Paralysie musculaire ou perte de la vue; ces symptômes sont ordinairement passagers et aucun traitement est recommandé.

Cas d'urgence médicale où le dentiste doit assurer un traitement médical adéquat jusqu'à l'arrivée d'un médecin sur les lieux.

Angine de poitrine. — Condition aggravée par de l'exertion ou une crise émotionnelle se manifestant par une douleur substernale, une pâleur faciale avec transpiration; cette condition se traite par du repos et de la nitro-glycerine, 1/200 gr sublingualement. Il faut se rappeler qu'une occlusion coronaire peut se produire.

Occlusion coronaire. — L'occlusion coronaire se caractérise par une douleur radiante de la poitrine d'intensité variée. On administre de l'oxygène et de la morphine ¼ gr. On conseille du repos et on réfère le patient pour un électrocardiogramme.

Tachycardie auriculaire parenchymale. — Le patient doit avoir un examen médical complet avant d'être traité. Une prémédication avec un barbiturique doit être employé si le patient souffre de tachycardie.

Congestion cardiaque aiguë. — La congestion cardiaque aiguë se caractérise par de la dyspnée, orthopnée et enflure des chevilles; ces symptômes doivent être notés à l'examen pré-opératoire et le patient référé à son médecin avant tout traitement dentaire.

Choc diabétique. — Certains diabétiques non bien contrôlés se présentent avec les symptômes suivants: nervosité, vision faible, pâleur et perte de connaissance. On doit leur donner du sucre soit par voie orale ou intra-veineuse 50ml. d'une solution 50 pour cent glucose,

Convulsion. — L'histoire de cas décèle ces patients et, dans les cas extrêmes, on injecte par voie intra-veineuse, un barbiturique à courte action.

Accident cérébral vasculaire. — L'accident cérébral vasculaire est caractérisé par de la faiblesse, paralysie de la face ou des extrémités, convulsions. Administrer de l'oxygène et demander de l'aide.

Attaques asthmatiques. — Ces maladies sont rares et elles sont des manifestations allergiques; de l'épinéphrine ou aminophylline peuvent aider, mais le mieux est encore d'éviter tout traitement et de demander de l'aide.

Embarras mécanique respiratoire. — Trouver la cause, administrer de l'oxygène et dans des cas spéciaux, faire une trachéotomie.

Perte de connaissance ou choc. — Ce point mérite une attention toute particulière et il faut l'approfondir davantage.[4] Cette manifestation peut être produite par:

(a) Affaiblissement cardiaque. — Un infarctus peut produire un état de choc en diminuant le rendement cardiaque. En l'absence d'incidents similaires, la pression peut demeurer normale. Le même état peut aussi se produire avec de la tachycardie où les ventricules se contractent trop longtemps. Une grave congestion cardiaque peut aussi résulter en un choc terminal.

(b) Tamponnade péricardiale. — Condition créée par une blessure, effusion ou emphysème résultant en une circulation inadéquate quand la pression péricardiale devient insuffisante pour intervenir dans le remplissage des oreillettes.

(c) Obstruction des principaux vaisseaux artériels. — Un embolus massif bloquant les artères pulmonaires produit le choc. De plus petits emboli et le bloquage de capillaires par du tissu néoplasique peut aussi produire le même effet.

(d) Retour affaibli de la circulation veineuse. — Si le volume sanguin est suffisamment diminué, le retour veineux au cœur ne s'accomplit pas; si le volume est rétabli, la condition est réversible. Les causes de cette diminution de volume sont: (1) hémorragie causant une hémodilution; (2) perte de plasma; (3) deshydratation.

(e) Dérangement des métabolismes cellulaires. — Le patient souffrant de troubles hépatiques-rénaux avec infection et brûlures peut en effet mourir, non pas d'un manque de volume sanguin, mais bien de dérangement métabolique. Cette forme de choc est réversible si la cause est corrigée. Les patients chez qui une forme irréversible de choc se produit, après une circulation sanguine adéquate, meurent à cause de la perte de cellules dans les tissus.

(f) Changement du tonus dans les petits vaisseaux.— La perte de connaissance ou l'évanouissement semble être précipité par un stimbus nerveux ou un phénomène émotionnel par lequel un réflexe artériel se produit causant alors une dilatation des vaisseaux et par conséquent une chute de la pression sanguine.

Les six principaux facteurs causant le choc ont été ici décrits, mais il est improbable qu'ils se produisent indépendamment les uns des autres. L'infection des mécanismes cellulaires est souvent présent chez le patient ayant perdu du sang à la suite d'un traumatisme et chez le patient deshydraté. Une dilatation artérielle se produit aussi dans un cas de fracture, conséquence de la douleur. Le traitement du choc se résume donc dans les directives suivantes:

1. Eviter les pertes de sang durant la chirurgie;
2. Rétablir le volume sanguin;
3. Une pré-médication adéquate;
4. Position semi-couchée ou horizontale pour donner l'anesthésie locale;
5. Garder le patient au chaud.

A la suite de ce court exposé sur les états d'urgence dans le cabinet dentaire, l'auteur espère que chacun des lecteurs sera capable de reconnaître ces accidents et de les traiter en conséquence quand ils se produiront dans leur pratique.

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Geisinger Medical Center

Dental personnel in Canada, 1964

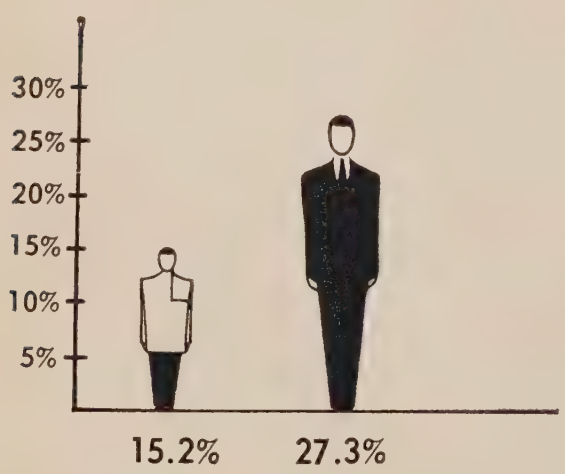
Nombre des dentistes au Canada en 1964

Bureau of Economic Research

Bureau des recherches économiques

Change in numbers and ratios of dentists during 1963

As of the first of this year, there were 6,103 dentists registered in Canada—5,975 men and 128 women. Between 1963 and 1964, Canada's dental personnel grew by a net increase of 104 dentists (Table 1). In 1963, 260 dentists graduated from dental schools. Not all of these dentists will have registered in Canada. Also during 1963, 81 dentists died, 60 retired, 31 emigrated and 11 were taken off the provincial registers for other reasons. Therefore, more than 27 dentists who entered practice in Canada during 1963 must either



Increase in dentists and population, 1954-64 • Augmentation des dentistes et de la population, 1954-64.

Modifications dans le nombre et dans les proportions des dentistes au cours de 1963

Il y avait, au début de 1963, 6,103 dentistes enregistrés au Canada, 5,975 hommes et 128 femmes. Le nombre des dentistes, entre 1963 et 1964, a augmenté de 104 (Tableau 1). En 1963, il y eut dans les facultés dentaires 260 diplômés. Tous ces nouveaux confrères ne se sont pas fixés au Canada. Au cours de 1963, il y eut 81 décès, 60 retraites, 31 ont changé de pays et 11, pour diverses raisons, se sont retirés des registres provinciaux. C'est pourquoi, plus des 27 dentistes dont les noms ont été ajoutés à ceux qui exerçaient déjà au Canada ont ou fait leurs études à l'étranger ou se sont ré-inscrits pour l'exercice après s'être retirés temporairement (Tableau 2).

Vingt dentistes ont émigré aux Etats-Unis et 11 ont laissé le Canada pour d'autres pays. Plus de dentistes ont quitté l'Alberta que toute autre province. Dans seulement deux provinces (Ile-du-Prince-Edouard et Nouveau-Brunswick), le nombre des dentistes qui s'y sont installés a dépassé celui des dentistes qui les ont laissées. Toutes les autres provinces ont accusé des pertes — de 1 à 12 dentistes — par des migrations (Tableau 3).

TABLE 1 Dentists registered in Canada, 1964 • Dentistes enregistrés au Canada en 1964.

Province	Total	Men Hommes	Women Femmes	Province
Newfoundland	47	44	3	Terre-Neuve
Prince Edward Island	32	32	0	Ile-du-Prince-Edouard
Nova Scotia	189	186	3	Nouvelle-Ecosse
New Brunswick	121	120	1	Nouveau-Brunswick
Quebec	1,446	1,428	18	Québec
Ontario	2,599	2,517	82	Ontario
Manitoba	289	289	0	Manitoba
Saskatchewan	187	186	1	Saskatchewan
Alberta	467	460	7	Alberta
British Columbia	726	713	13	Colombie britannique
Canada	6,103	5,975	128	Canada

TABLE 2 Changes in dental registers during 1963 • Modifications dans les registres en 1963.

Province	Deleted from register Retraits des registres				Added to register	Province
	Deaths Décès	Retirements Retraites	Relocated Déménagements	Other Autre	Additions aux registres	
Newfoundland	0	0	4		7	Terre-Neuve
Prince Edward Island	0	0	1		2	Ile-du-Prince-Edouard
Nova Scotia	1	0	2		7	Nouvelle-Ecosse
New Brunswick	3	1	0		2	Nouveau-Brunswick
Quebec	14	28	6		60	Québec
Ontario	33	39	17	7	143	Ontario
Manitoba	6	0	5		18	Manitoba
Saskatchewan	7	2	1		6	Saskatchewan
Alberta	3	5	15	4	38	Alberta
British Columbia	8	6	9		51	Colombie britannique
Canada	75	81	60	11	334	Canada

have been educated abroad or have re-entered practice after temporary retirement (Table 2).

Twenty dentists went to the United States and 11 left Canada for other countries. More dentists left Alberta than any other province. Only two provinces (Prince Edward Island and New Brunswick) had more dentists move into the province than leave. All other provinces had net losses from relocations ranging from one to 12 dentists (Table 3).

The dental population ratio remained

La proportion des dentistes par rapport à la population est restée la même. Cette constatation est de bon augure, puisque depuis cinq ans cette proportion allait toujours en diminuant. Toutefois, la question des effectifs dentaires du Canada n'est pas réglée. Quatre provinces ont, cette année, des proportions plus faibles — Nouveau-Brunswick, Québec, Saskatchewan et Alberta. Plus de dentistes sont morts qu'il y en a eu d'ajoutés au registre, en Saskatchewan et au Nouveau-Brunswick. La proportion de la Saskatchewan est la plus faible dans les

TABLE 3 Relocation of Canadian dentists during 1963 • Migration des dentistes canadiens durant 1963.

To-A / From-De	Nfld.•T.-N.	P.E.I.•I.-P.-E.	N.S.•N.-E.	N.B.	Qué.	Ont.	Man.	Sask.	Alta.	B.C.•C.-B.	U.S.A.•E.-U.	Elsewhere Ailleurs	Total
Nfld.•T.-N.				1		1				1	1		4
P.E.I.•I.-P.-E.			1										1
N.S.•N.-E.		1		1									2
N.B.													0
Qué.						1				1	4		6
Ont.		1					3			2	4	7	17
Man.						4			1				5
Sask.									1				1
Alta.					1	1				4	8	1	15
B.C.•C.-B.						2			1		3	3	9
Total		2	1	2	1	9	3		3	8	20	11	60

TABLE 4 Population per dentist and dentists per 10,000 population, 1964 • Population par dentiste et dentistes par 10,000 de population en 1964.

Province	Population per dentist Population par dentiste	Dentists per 10,000 population Dentistes par 10,000 de population	Province
Newfoundland	10,234	1.0	Terre-Neuve
Prince Edward Island	3,344	3.0	Ile-du-Prince-Edouard
Nova Scotia	4,000	2.5	Nouvelle-Ecosse
New Brunswick	5,074	2.0	Nouveau-Brunswick
Quebec	3,781	2.6	Québec
Ontario	2,481	4.0	Ontario
Manitoba	3,287	3.0	Manitoba
Saskatchewan	4,989	2.0	Saskatchewan
Alberta	3,009	3.3	Alberta
British Columbia	2,335	4.3	Colombie britannique
Canada	3,096	3.2	Canada

unchanged (one dentist for every 3,096 people). This is heartening because for the past five years the ratio has deteriorated each year. However, Canada's dental

trois provinces des prairies. La Colombie britannique, parmi les provinces, continue à avoir la meilleure proportion et Terre-Neuve, la pire (Tableau 4).

manpower problem has not abated. Four provinces have worse ratios this year — New Brunswick, Quebec, Saskatchewan and Alberta. In Saskatchewan and New Brunswick more dentists died than were added to the register. Saskatchewan's ratio was by far the most unfavourable of the three prairie provinces. British Columbia continued to have the best ratio of all provinces and Newfoundland the worst (Table 4).

Problème des effectifs dentaires au Canada

Au cours des dix dernières années, aucune province n'a augmenté le nombre de ses dentistes au même rythme que l'accroissement de sa population (Tableau 5). Durant les prochaines dix années, le groupe d'âge qui a le plus besoin de traitements dentaires augmentera à un taux extraordinaire. En 1971, on calcule qu'il y aura 2,125,000 plus de personnes de moins de 25 ans qu'il y en avait en

TABLE 5 Absolute increase in dentists and per cent increase in dentists and population, by province, 1954-1964 • Augmentation nette des dentistes et pourcentage de l'augmentation des dentistes et de la population, par province, 1954-1964.

Province	Increase since 1954 — Augmentation depuis 1954			Province
	Dentists — Dentistes		Population	
	No.	%	%	
Newfoundland	15	46.9	25.6	Terre-Neuve
Prince Edward Island	–2	–5.9	5.9	Ile-du-Prince-Edouard
Nova Scotia	–9	–4.5	14.0	Nouvelle-Ecosse
New Brunswick	5	4.3	15.2	Nouveau-Brunswick
Quebec	173	13.6	28.1	Québec
Ontario	379	17.1	30.5	Ontario
Manitoba	27	10.3	17.4	Manitoba
Saskatchewan	–28	–13.0	8.4	Saskatchewan
Alberta	96	25.9	38.8	Alberta
British Columbia	149	25.8	35.8	Colombie britannique
Canada	805	15.2	27.3	Canada

TABLE 6 Full-time dental specialists, 1964 • Nombre des spécialistes, 1964.

Province	Total	Specialists — Spécialistes			Province
		Oral surgery — Chirurgie buccale	Orthodontics — Orthodontie	Periodontics — Périodontie	
Newfoundland	—	—	—	—	Terre-Neuve
Prince Edward Island	0	0	0	0	Ile-du-Prince-Edouard
Nova Scotia	7	2	4	1	Nouvelle-Ecosse
New Brunswick	3	0	3	0	Nouveau-Brunswick
Quebec	40	10	26	4	Québec
Ontario	129	35	74	20	Ontario
Manitoba	11	5	5	1	Manitoba
Saskatchewan	2	0	2	0	Saskatchewan
Alberta	17	5	11	1	Alberta
British Columbia	17	7	9	1	Colombie britannique
Canada	226	64	134	28	Canada

TABLE 7 Number of practising dental hygienists, 1964 • Nombre des hygiénistes en exercice, 1964.

Province	Number practising En exercice
Newfoundland Terre-Neuve	1
Prince Edward Island Ile-du-Prince-Edouard	2
Nova Scotia Nouvelle-Ecosse	11
New Brunswick Nouveau-Brunswick	1
Quebec Québec	4
Ontario	98
Manitoba	2
Saskatchewan	5
Alberta	29
British Columbia Colombie britannique	12
Canada	165

TABLE 8 Ratio of practising dental hygienists to dentists registered, 1964 • Dentistes enregistrés par hygiénistes en exercice, 1964.

Province	Hygienists : Dentists Hygiénistes : Dentistes
Newfoundland Terre-Neuve	1 : 47
Prince Edward Island Ile-du-Prince-Edouard	1 : 16
Nova Scotia Nouvelle-Ecosse	1 : 17
New Brunswick Nouveau-Brunswick	1 : 121
Quebec Québec	1 : 362
Ontario	1 : 27
Manitoba	1 : 145
Saskatchewan	1 : 37
Alberta	1 : 16
British Columbia Colombie britannique	1 : 61
Canada	1 : 37

Canada's dental manpower problem

Over the past ten years no province has increased its number of dentists as quickly as its population has grown (Table 5). Over the next ten years, the age group requiring most dental care will be increasing at an explosive rate. By 1971, it is estimated that there will be 2,125,000 more people under 25 years of age than there were in 1961. As the population's per capita income and years of education increase, an increase in the demand for dental services is expected. The dental profession has done its best to impress upon the authorities its concern about the problem of meeting an increased demand for services.

What has happened to the supply of dentists over the past 50 years is not encouraging. For example, Nova Scotia's ratio has been declining gradually since 1931 and the present ratio (1:4,000) is worse than it was in 1911 (1:3,939). New Brunswick has experienced such a steep climb in its ratio since 1931 that each New Brunswick dentist now serves 41 per cent more people than in 1911 (1:5,074 compared with 1:3,591). From 1961. On s'attend à une augmentation considérable de demandes pour des services dentaires à la mesure de l'augmentation de la moyenne des revenus et à celle de la moyenne des années que la jeunesse consacre à son instruction. La profession dentaire a fait son possible pour souligner aux autorités ses préoccupations au sujet du problème que soulève l'augmentation des demandes pour des traitements.

La situation des effectifs de la profession dentaire, depuis les cinquante dernières années, n'est guère reluisante. Par exemple, la proportion des dentistes de la Nouvelle-Ecosse par rapport à la population baisse graduellement depuis 1931 et la proportion actuelle (1:4,000) est pire qu'elle était en 1911 (1:3,939). Au Nouveau-Brunswick, cette proportion a subi, depuis 1931, un tel déclin qu'aujourd'hui chacun des dentistes de cette province doit répondre aux demandes de 41 pour cent de plus de personnes qu'en 1911 (1:5,074 contre 1:3,591). La proportion de la Saskatchewan, de 1921 à 1951, n'a guère varié. Mais, depuis 1951, elle s'est fort détériorée. La population a augmenté de 8.4 pour cent, de 1954 à 1964, et le nombre des dentistes a baissé de 13 pour

TABLE 9 Dentists employed in health services, 1964 • Dentistes employés dans des services de santé, 1964.

Health service	Total	Province										Service de santé
		Nfld. T.-N.	P.E.I. I.-P.-E.	N.S. N.-E.	N.B. N.-B.	Que. Qué.	Ont.	Man.	Sask.	Alta.	B.C. C.-B.	
Dental schools												Facultés dentaires
full-time	73	—	—	5	—	20	19	11	—	14	4	temps complet
half-time	41	—	—	1	—	14	5	2	—	19	0	demi-temps
part-time	346	—	—	22	—	114	157	19	—	34	0	temps partiel
Hospital service												Service hospitalier
full-time	65	1	0	3	1	13	22	4	2	9	10	temps complet
part-time	109	0	1	1	0	89	7	0	0	0	11	temps partiel
School dental service												Service scolaire
full-time	112	0	0	1	3	32	31	2	5	8	30	temps complet
half-time	84	0	8	2	1	9	57	4	1	0	2	demi-temps
Public health service												Service d'hygiène publique
full-time	43	2	2	3	1	10	11	2	1	6	5	temps complet
half-time	18	0	0	0	0	0	0	1	0	17	0	demi-temps
Total												Total
full-time	293	3	2	12	5	75	83	19	8	37	49	temps complet
half or part-time	598	0	9	26	1	226	226	26	1	70	13	demi ou temps partiel

TABLE 10 Dentists employed full-time by federal departments, 1964 • Dentistes employés à plein-temps par les Ministères fédéraux, 1964.

Federal department	Dentists employed Dentistes employés	Ministères fédéraux
National Defence	167	Détense nationale
National Health and Welfare	22	Santé nationale et bien-être social
Veterans Affairs	35	Anciens combattants
Total	224	Total

1921 to 1951 the Saskatchewan ratio changed little. Since 1951, however, it has deteriorated greatly. While the population increased 8.4 per cent between 1954 and 1964, the number of dentists dropped 13 per cent. Of even more concern is the decline in the absolute number of dentists. There are 28 fewer dentists in Saskatchewan now than ten years ago. Two other provinces (Prince Edward Island and Nova Scotia) have lost dentists, but Saskatchewan has lost two and one-half times the combined loss of these two provinces. On many occasions the profession has advocated the establishment of a dental school in Saskatchewan. This suggestion still appears to offer the most hope of improving the province's supply of dentists.

Specialists, dental hygienists and salaried dentists

There are 226 full-time dental specialists — 64 oral surgeons, 134 orthodontists and 28 periodontists. Since 1954, the number of orthodontists has more than doubled, the number of oral surgeons increased 45 per cent and seven more periodontists entered practice (Table 6).

Today there are 165 dental hygienists in Canada, one and one-third times as many as were practising only four years ago (Table 7). All provinces now have some dental hygienists although their ratios of hygienists to dentists vary greatly. Ontario and Alberta have the most dental hygienists (98 and 29 respectively), Alberta, Prince Edward Island and Nova Scotia have the highest ratios of dental hygienists to dentists (Table 8).

There are 598 dentists employed either full or part-time in dental schools, hospitals, school dental services and public health services. More than one-half of these (346) teach in the dental schools on a part-time basis. The total number of full-time employed dentists is 293; two hundred and twenty-four dentists are full-time members of the three federal government departments employing dentists (Tables 9 and 10).

cent. La situation est pire quand il s'agit de la diminution du nombre absolu des dentistes: il y a 28 dentistes de moins dans cette province qu'il y a dix ans. Deux autres provinces (Ile-du-Prince-Edouard et Nouvelle-Ecosse) ont perdu des dentistes, mais la Saskatchewan a perdu deux fois et demie plus de dentistes que ces deux provinces réunies. La profession, à plusieurs reprises, a demandé d'établir une faculté dentaire en Saskatchewan. Cette suggestion semble être la meilleure solution pour doter cette province d'un plus grand nombre de dentistes.

Spécialistes, hygiénistes dentaires et dentistes salariés

Il y a 226 spécialistes qui exercent à temps complet — 64 chirurgiens, 134 orthodontistes et 28 périodontistes. Depuis 1954, le nombre des orthodontistes a plus que doublé; celui des chirurgiens a augmenté de 45 pour cent; et sept périodontistes de plus sont en exercice (Tableau 6).

Il y a aujourd'hui 165 hygiénistes dentaires au Canada, c'est-à-dire une fois et un tiers de plus qu'il y a quatre ans (Tableau 7). Toutes les provinces ont maintenant des hygiénistes dentaires, quoique leur proportion varie d'une province à l'autre. L'Ontario et l'Alberta ont le plus grand nombre d'hygiénistes dentaires (98 et 29 respectivement), mais l'Alberta, l'Ile-du-Prince-Edouard et la Nouvelle-Ecosse ont la plus forte proportion d'hygiénistes dentaires par rapport aux dentistes (Tableau 8).

Il y a 598 dentistes employés à plein temps ou à temps partiel dans les facultés dentaires, les services dentaires des écoles, les hôpitaux et les services de santé publique. Plus de la moitié de ceux-ci (346) enseignent dans des facultés dentaires à temps partiel. Le nombre des dentistes employés à temps complet se chiffre à 293; deux cent-vingt-quatre dentistes travaillent à plein-temps dans les trois ministères fédéraux qui en emploient (Tableaux 9 et 10).

High-speed cutting devices:

boon or bane to restorative dentistry

Among recent advances in dental materials, techniques and equipment, none has had a greater impact than the increase in speed of rotary cutting instruments. These devices seem to possess more advantages and fewer disadvantages than any other instrument used for the reduction of tooth substance.

High-speed cutting techniques, it is claimed, permit the dentist to render better service, more easily, more safely, and faster, with greater comfort for both patient and himself. Dentists have been quick to recognize these advantages and have installed the necessary equipment in large numbers. A reasonable assumption is that the volume of dental care has increased to a commensurate degree.

But that is only one side of the coin.

Unfortunately, this newly acquired facility has been a mixed blessing in that it has tempted some dentists to resort to unnecessary and sometimes indiscriminate tooth reduction. There is good reason to question the value of some of the more extreme examples of full coverage restoration. The production of a full crown with satisfactory cervical margins is not to be lightly undertaken simply because enamel can be sacrificed in such short order. Yet this is precisely what seems to be happening. Where formerly more conservative amalgam or inlay preparations would have been the treatment of choice, some dentists now blithely reduce external tooth contours, thereby mutilating occlusal relationships and endangering the health of the periodontium, and laying the foundation for future problems that could well cost them the confidence of their patients.

This practice is dangerous for the patient, for the dentist and for the profession as a whole. It is time to reassess high-speed cutting devices for what they really are: valuable when used with care and sound judgement; dangerous when they are indiscriminately abused. Dentists will have to display greater acumen if they are to reap the full benefits of these devices.

Increased dental productivity

Four hundred and fifty new dentists must be graduated each year to provide by 1980 one dentist for every 2,500 Canadians.[1] Achievement of this modest improvement in our dentist-population ratio requires annual graduating classes that are almost double the number of dental students expected to graduate this year.

Important as the matter of reversing the dental manpower deficit may be, the full contribution of any additional dentists will not be realized merely by increasing their numbers. In the past dentists have attempted to keep pace with population increases and increased demand for services by working harder, by using more dental assistants, dental laboratory technicians and dental hygienists,

by obtaining better equipment, and by improving their practice procedures. Thus far, these measures have served to keep the supply of dentists and the demand for care within some sort of balance. But they are inadequate to meet the demand expected of a rapidly increasing population during the next 15 years. Furthermore, some of these measures have probably already made their major contribution. Future increases in productivity will therefore be difficult to attain without a major shift in the use of auxiliary aides.

However reluctant to do so, the dentist will have to analyse his technical procedures and determine those that can best be delegated to lesser trained personnel. Elsewhere in this issue two articles by Purves and McPhail suggest how this may be done with advantage to patient and dentist alike.

In this country, Baird et al[2,3] have demonstrated that military clinical technicians (dental hygienists) can be trained to perform a variety of advanced technical procedures within a reasonable period of time. When they are subsequently integrated with other dental personnel productivity is markedly increased.

It is often claimed that the present division of duties between the dentist and his auxiliaries is necessary to maintain standards of care. The same objective can be attained if the legal requirements, after first assuring the professional competence of the dentist, simply held him responsible for all procedures performed under his direction and assured that auxiliary personnel would work only under his supervision.

More than anything else, we need clear vision and open minds on this subject.

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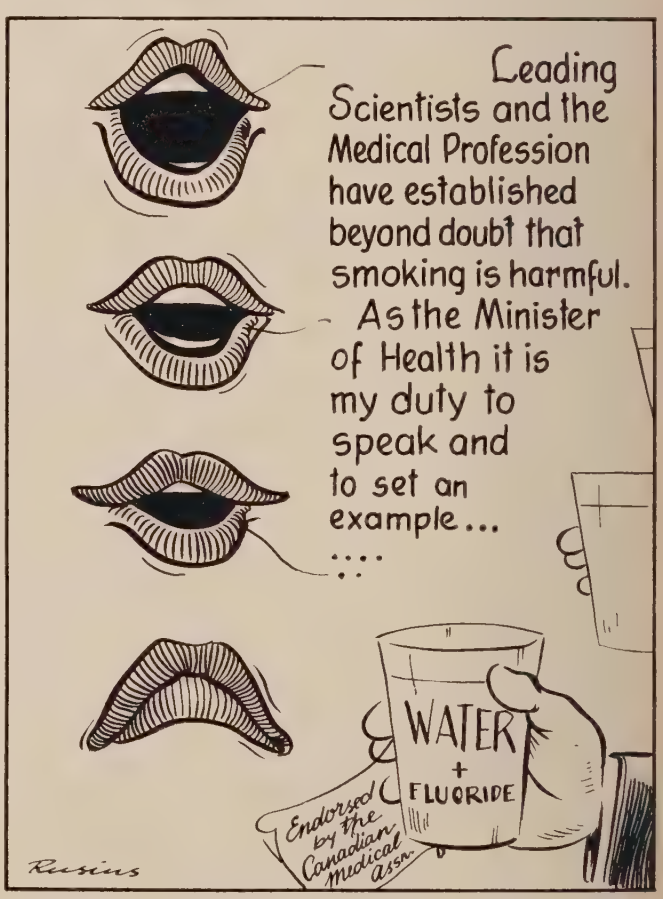
Fence-sitting compounded

Fluoridated water is important to health, but we don't give any advice on the subject. That is the essence of a curious statement read to Parliament on March 23 by the parliamentary secretary to Health Minister Judy LaMarsh.

Of late there have been repeated requests for clarification of the federal government's stand on fluoridation. After all, the Department of National Health and Welfare has made exhaustive studies on the subject. It has closely watched experiments in Canadian and other cities. It should offer advice to guide the public. Instead we are tendered this appalling and evasive placebo.

The Department of National Health and Welfare supports other health measures. We are regaled with candid advice about the dangers of cigarette smoking and lung cancer. There is no reason why



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Canadians cannot bear up manfully to honest counsel on fluoridation. This, from Ottawa, is long overdue!

La poursuite de la formation professionnelle

Benjamin Franklin a déjà dit: "Si un homme vide son portefeuille dans son cerveau, personne ne pourra le lui voler."

Calvin Coolidge a déclaré: "Nous ne devons pas laisser notre formation à la porte de l'école. Il faut la continuer tout au cours de notre vie."

Un docteur Leroy Main a écrit: "Celui, qui a terminé ses études hier et qui arrête d'apprendre aujourd'hui, sera ignorant demain."

Le docteur G.V. Black prononçait, un jour, cette phrase: "Le professionnel se doit d'être toujours un étudiant."

Le code d'éthique professionnelle de l'Association dentaire américaine énonce le principe suivant (section 1): "Tout dentiste, par la poursuite de sa formation, a le devoir, toute sa vie professionnelle, de tenir à la page son art et sa science."

Ces idées, nul ne les conteste. Elles sont évidentes. Particulièrement, à notre époque, où les recherches dans le domaine biologique ont reçu un élan extraordinaire et où les découvertes dans le domaine de l'électronique ont modifié fondamentalement des techniques qui paraissaient rendues au degré ultime de perfection.

Par quels moyens, un dentiste peut-il parfaire sans cesse sa formation? On peut énumérer, par ordre de valeur, les façons grâce auxquelles le praticien peut se tenir au courant des conceptions nouvelles du traitement des patients et des climats sociaux contemporains dans lesquels se déroulent ces traitements!

1. Contacts avec des confrères. Ces échanges entre dentistes sont plus rares qu'entre autres professionnels.

2. Renseignements et littérature fournis dans les cabinets dentaires par des distributeurs de matériel ou de médicaments. Ces communications ont l'inconvénient d'être teintées d'intérêt unilatéral.

3. Des patients, parfois, apprendront à leur dentiste de nouveaux modes de traitement, connus dans les journaux, à la télévision, par oui-dire.

4. Certains dentistes, par leur génie inventif, leur curiosité scientifique, leur expérience, pourront mettre au point des techniques nouvelles. Ce travail exige cependant des recherches qui doivent compter sur des apports extérieurs.

5. Les journaux professionnels et les revues scientifiques constituent des sources précieuses de renseignements. Toutefois, les informations que ces imprimés contiennent exigent un effort personnel du lecteur qui n'est pas toujours en mesure d'en comprendre le language et l'application pratique.

6. Les conférences des sociétés dentaires. Voilà un médium excellent de communication où un échange peut s'établir entre le conférencier, l'auditeur et les confrères présents. Malheureusement, les sujets des communications ne sont pas toujours ceux que l'omnipraticien veut entendre. De plus, le pourcentage des membres de ces sociétés est faible en regard de la population totale des dentistes.

7. Les clubs d'étude des sociétés. Cette formule est susceptible de prodiguer à leurs adhérents un baggage considérable de connaissances dans une discipline déterminée; elle leur fournit l'occasion d'une participation active et individuelle. Là encore, ce moyen ne peut s'adresser à la masse des dentistes: seul un petit nombre en tire avantage et — dans un secteur isolé.

8. Les congrès — et surtout les cliniques de table qui s'y déroulent—par la diversité des sujets traités, les contacts personnels entre les confrères et les cliniciens, représentent la formule idéale pour augmenter le rendement scientifique d'un groupe considérable de dentistes. Cette formule de congrès a cependant des inconvénients: elle mêle aux activités scientifiques de lourds programmes de festivités sociales

qui risquent d'en modifier l'objectif principal, qui est d'ordre scientifique. De plus, les communications scientifiques d'un congrès ne peuvent qu'effleurer les sujets. Le nombre restreint des congressistes, en rapport avec la totalité des dentistes, déconcerte toujours.

9. Cours post-scolaires. Voilà la façon idéale de se rendre compte des progrès réalisés dans une discipline. C'est la façon la plus pratique de toucher du doigt — surtout quand les participants à un cours ont le privilège de traiter des patients sous la direction des professeurs — les données les plus récentes d'un domaine clinique.

10. Cours gradués menant à un diplôme (certificat, maîtrise, Ph.D.). Ces études poussées consomment trop de temps pour être à la portée d'un grand nombre de dentistes. Ils s'adressent à des individus qui ont un objectif bien précis: recherches, enseignement, spécialisation.

Le dentiste a donc plusieurs moyens pour tenir à la page son rendement.

La formule qui répond le mieux aux exigences d'un grand nombre se trouve dans celle des cours post-scolaires (comme les Américains les appellent, "Continuation education").

Le patient est à la veille d'exiger — s'il ne le fait pas déjà — les traitements les plus parfaits.

G. de M.

correspondence

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

FIXED, DEFINITE OR SUGGESTED FEE SCHEDULES

To the Editor:

Having practised for a little over two years under the British National Health Service and for a little over one year under the free enterprise system of Ontario, my comments may be of some use as I have seen and experienced both systems and found their pitfalls and advantages.

I gather that we are soon to have in Ontario a fixed fee schedule. I do not know whether there will be provision for varying the fee with the severity of the condition to be treated, but if this provision is omitted, it could be one of the most retrograde steps taken in the history of North American dentistry.

Governmental agencies that take control of an industry or profession require rigid regulations to ensure smooth administration. Hand in glove with this comes red tape and duplication of forms and records. No one feels guilty about cheating the government. Therefore government usually must "police" the activity it is controlling. The health professions are not immune from investigation, even though there may be no more cheating against a public body than exists sporadically against individuals.

There are fiscal problems, too! Fee for service, with an agency paying that fee, must be on a fixed fee basis in order to simplify administration of payment of accounts and facilitate private policing within the system. Thus a fixed fee with an agency paying the account leads to swings and roundabouts on individual items which vary from the normal. Further, if we take as an example

the class I amalgam restoration, the fee that will be determined for this will be for the average. If required treatment is less than average, then this will be more akin to prophylactic odontotomy than to restorative dentistry. As the former is not widely practised, this leaves no scope for increased fees for more severe conditions, unless one "makes" a class I into a class II preparation to attract a higher fee. Thus a dangerous temptation is created. And if a Canadian system follows the British pattern, the changeover will be insidious and slow as the fees are progressively depressed. Raising the fees will not restore the standard in itself, because once morality and ethics are sacrificed to money, more money will not bring about an improvement — rather the reverse.

Under a fixed fee for service, with no provision for variation, patients are faced with higher or lower fees than their condition warrants, depending on whether or not they receive regular care. If the dentist must then decide whether to make the treatment fit the fee, or the fee fit the treatment, his subsequent actions may well imperil ethical concepts and could eventually lead to his extinction in general practice. This is dangerous because the whole future of dentistry depends on the general practitioner and his relations with the public, his patients.

A further and more subtle point exists. There is a misconception in the public mind that a "better deal" is obtained by deferring dental treatment, thereby getting a lot done for a little spent. However, once dental care becomes "free" as in Britain, this attitude changes, and the tendency is for more and more persons to seek treatment sooner. This eventually reduces the time needed for a given restorative procedure. Remuneration is reduced as the conditions requiring treatment become progressively more simple. And faced with the prospect of reduced income or less service for the patient, many dentists will choose the latter course. After all, the profession is composed of normal men, subject to normal temptations, and possessing the normal weaknesses.

Sufficient has been said to indicate the pitfalls of a fixed fee schedule, without even touching on such factors as variations in expenses and standards of practice, effects of postgraduate studies, problem patients, and standards of excellence that satisfy one dentist but do not satisfy a second and could not be attained by a third.

Let those who try to produce a fixed fee schedule beware! And let them remember that the standard of care that should be achieved under the minimum fee should be equivalent to that expected at the final examination, and no lower. In order to safeguard our minimum accepted standard and encourage higher standards the fee schedule should be a "minimum" schedule with provision for increase if the patient's condition or treatment techniques employed warrant it.

T. D. G. Lyons, B.D.S. (Lond.),
L.D.S., R.C.S. (Eng.),
22 William Street West,
Smiths Falls, Ontario.

The above letter is a condensed version of a rather more lengthy communication from Dr. Lyons. Space limitations preclude printing the original letter in its entirety. In view of widespread interest in the subject, Dr. Lyons' letter was referred for comment to Dr. J. B. Taylor, chairman of the Ontario Dental Association's Public Relations Committee which is preparing a fee schedule for use in Ontario; to Dr. W. G. McIntosh, chairman of the Canadian Dental Association's Dental Services Committee; and to Dr. W. J. Dunn, registrar-secretary of the Royal College of Dental Surgeons of Ontario. *(Ed.)*

To the Editor:

I read with interest Dr. Lyons' observations on problems associated with fixed and suggested fee schedules.

The Ontario Dental Association brought out its first Suggested Fee Guide as a help to the practising dentist of Ontario and more particularly to the recent graduate. The preamble of that guide tried to cover in part extenuating circumstances that will always arise in the conscientious practice of dentistry.

In May 1963 the C.D.A. Board of Governors requested that each province establish a Schedule of Fees to meet increased requirements for such schedules by other agencies. At present we are redrafting our guide as a Schedule of Fees. This schedule will embrace the services of recognized specialties as well as all phases of general practitioners' services. Our schedule will thus be patterned on the Ontario Medical Association's Schedule of Fees and will likewise have a suitable preamble.

The committee charged with this great responsibility is fully cognizant of the inherent weaknesses of any schedule of dental fees. We sympathize with many of the apprehensions expressed by Dr. Lyons. The experience since introduction of the first Ontario Dental Fee Guide is that the great majority of conscientious dentists have used it fairly and with discretion. In his day to day contact with patients the dentist is still the final judge of what constitutes a fair fee. But it is impractical to produce dozens of regional schedules or, more ideally, a different schedule for each individual dentist.

Dr. Lyons states, "The fee schedule should be a minimum fee schedule, with provisions for increase if the patient's condition or techniques employed warrant it." It is our opinion that requiring every dentist to judge whether the "patient's condition or techniques employed" warrant an extra fee of some nebulous amount presents many formidable problems for the dentist or insuring agency using this schedule.

J. B. Taylor, D.D.S.,
532 Dundas Street,
London, Ontario.

To the Editor:

Thank you for providing me with the opportunity of commenting on the interesting letter from Dr. Trevor Lyons on "Fixed versus suggested fee schedules." I certainly wish to commend Dr. Lyons for expressing his viewpoint so ably. Opinions and suggestions, particularly those based on first hand experience, are most valuable to professional development, and are to be encouraged.

The pitfalls of fixed fee schedules, as mentioned by Dr. Lyons, do seem to exist as possibilities, and certainly should be considered along with all the other pros and cons when decisions on the subject are being made.

Another viewpoint, of course, is almost directly opposed to the one expressed by Dr. Lyons. Rather than viewing the fixed fee schedule as an instrument for lessening the quality of dental services, many see a fairly constituted fixed fee schedule as a strong lever to maintain and even elevate the overall quality of service, particularly during periods of economic and organizational instability such as exist when increasing numbers of organized groups press the dental profession and governments for more dental care at less cost.

I think it is a fact that dentists generally do not wish for a fee schedule of any kind. If we close our eyes to the socio-economic changes in our environment and to the demands and pressures from very large groups of people (government and labour as examples) the status quo seems good and few would have it changed. However, changes and pressures do exist, and in many parts of the world they have resulted in alterations to the practice of dentistry which should be avoided here if possible.

Fee schedules of one type or another do already exist. Over 30 schedules for dental fees are at present in use in Canada. These bear little resemblance to one another and most of them have been developed for serving the dental demands of specific groups of people under some type of contractual arrangement, such as welfare programs. It is to be hoped that this type of arrangement will always apply to specific population groups and never to the general public. However widely other contractual arrangements may ultimately be applied there seems little doubt that considerable pressure will be exerted on the profession to submit to the lowest or minimum fee for which specific services have been rendered. A well conceived fee schedule, established by the profession, rather than by some other group, should be the more logical basis for negotiation. And of course the more definite the schedule, the stronger it is as an instrument by which premiums for prepaid plans or the basis of payment for services can be negotiated.

With due regard for the points that can be said both for and against fee schedules of any kind, the perfect formula is not yet available. Dr. Lyons mentions the possible variations in fees that occur as a result of variables such as locality, custom, postgraduate training, etc. There are many others.

One of the reasons for the inefficiency of our present schedules is that they are arrived at more or less arbitrarily and do not have a scientific basis. If a scientific basis of fee determination could be established it might conceivably take care of many of these variables and provide us with a system that could be readily and accurately adapted to most practice situations.

With this in mind a subcommittee of the C.D.A. Dental Services Committee has for the past two years studied a relative value method of fee determination. The subcommittee hopes to produce a formula, based on relative values of dental services, by which factors such as time, responsibility and local economic conditions can be scientifically evaluated and included in the calculation of a fee.

A progress report was made by the subcommittee to the Board of Governors last year and appears on pages 18-22 of the 1963 *Transactions*. A further report is anticipated this year and will indicate substantial progress. It should be carefully reviewed and constructively criticized by all dentists interested in improving methods of fee determination.

Again may I compliment Dr. Lyons for stating his views, and thank the Journal for the opportunity of making these observations. The opinions I express are personal and do not necessarily reflect those of the Dental Services Committee.

W. G. McIntosh, D.D.S., M.Sc.D.,
170 St. George Street,
Toronto 5, Ontario.

To the Editor:

I am unaware of any activity in Ontario leading to the creation of a "fixed" schedule of fees. The confusion, I suspect, arose from a resolution of the Executive Council of the Canadian Dental Association, subsequently ratified by the Board of Governors at its annual meeting in May 1963. The resolution, standing alone, is certainly susceptible to misinterpretation and probably should be clarified in order to make its intention understood. The reason that the Canadian Dental Association urged its Corporate Members (provincial dental bodies) "to establish a definite fee schedule at the earliest possible moment" was provided in the following preliminary statement:

> "Looking to the future development of Dental Health Service Plans, the Executive Council is of the opinion that the establishment of definite provincial fee schedules of a positive nature and not qualified by the word "suggested" "guide" or other like terminology is a most important matter . . ."

Thus the employment of the word "definite" was never intended to mean "fixed." Rather the word was meant to convey that each Corporate Member should have a provincially approved document called a "Schedule of Fees" and there should be no modifying word employed with that title.

Anyone who has grappled at all with the development of a fee schedule is drawn ineluctably to the opinion that it is an absolute impossibility to create a schedule of fees or tariff which is fair and equitable under all circumstances. In my view this is axiomatic and is not, therefore, arguable. Accordingly and with respect, I must disagree with Dr. Lyons' contention that the fee schedule should be modified by the word "minimum." The best a fee schedule can do is to indicate average fees to persons of average means for services requiring average skill and average responsibility. None of these factors, unfortunately, is determinable with mathematical accuracy.

Wesley J. Dunn, D.D.S.,
Registrar-Secretary-Treasurer,
Royal College of Dental Surgeons of Ontario.

les actualités dentaires

Nomination d'un nouveau secrétaire à l'A.D.C.

Le président de l'Association dentaire canadienne, le docteur James Zimmerman, a fait part, après l'assemblée du Conseil Exécutif qui a eu lieu au mois de février, que le docteur William McIntosh, de Toronto, a été nommé secrétaire de l'Association dentaire canadienne.

Le docteur McIntosh entrera en fonction le 1er janvier 1965. Il commencera à consacrer du temps au secrétariat de l'Association à partir du 1er septembre 1964.

Le docteur Zimmerman, en annonçant cette nomination, a expliqué brièvement la procédure qui a été suivie pour choisir un candidat à ce poste. Un comité spécial avait été formé, peu après l'assemblée de 1962 du Conseil des Gouverneurs, pour choisir un successeur au docteur Don W. Gullett qui était secrétaire depuis 1942 et qui doit prendre sa retraite à la fin de 1964. Ce comité, en juin 1962, avait prié tous les membres corporatifs de l'Association de soumettre des noms de dentistes susceptibles d'occuper ce poste. Le Conseil Exécutif a tenu compte de tous les noms qui lui furent soumis. Le nom du docteur W. G. McIntosh est celui qui fut mentionné le plus souvent.

Le docteur McIntosh a participé dans diverses sphères et durant de nombreuses années aux organisations dentaires. Né en Saskatchewan, il reçut son diplôme de D.D.S. à l'Université de Toronto en 1937 et celui de M.Sc. D., en 1957. Depuis quelques années, il exerçait en exclusivité la périodontie et il a enseigné cette discipline à la faculté dentaire de l'Université de Toronto. Il fut prési-

dent du comité des recherches de l'A.D.C., président du comité du congrès et il est actuellement président du comité des services dentaires. Il fut le premier président de l'Académie canadienne de périodontologie. Le docteur McIntosh a représenté l'Ontario au Conseil des Gouverneurs de l'A.D.C. et il a siégé sur le Conseil Exécutif. Il fut président de l'Association et il est "fellow" du Collège américain des dentistes.

W. G. McIntosh

LE SECRÉTARIAT OCCUPE SES NOUVEAUX LOCAUX

L'Association dentaire canadienne a officiellement pris possession de l'annexe qu'elle avait fait construire attenant à son édifice. Il reste quelques menus travaux à exécuter, mais elle a occupé ses nouveaux locaux à partir du 27 janvier. D'autres modifications au vieil édifice compléteront le projet d'agrandissement qui avait été autorisé, il y a quelque temps, par le Conseil des Gouverneurs.

L'addition qui coûte au-delà de $100,000 renferme des bureaux pour le secrétaire et sa sténo-dactylo, pour le personnel du Journal, des locaux mieux aménagés pour le travail d'impression et une salle pour tout le personnel. Cet agrandissement double l'espace qui était disponible pour toutes les activités de l'Association. Environ la moitié du troisième étage pourra être utilisée pour agrandir encore, si nécessaire, le secrétariat de l'Association. Les membres de l'Association apprécieront surtout la salle plus spacieuse destinée aux réunions de comités et de conseils, parce que, dans l'ancienne salle, il était impossible de loger un groupe considérable de personnes. Cette nouvelle salle de réunion peut recevoir à l'aise 30 personnes et, en certaines occasions, un plus grand nombre.

L'annexe communique à tous les étages avec l'ancien édifice, mais il forme quand même une entité distincte. Elle a son propre système de chauffage et de climatisation. Le premier étage (il n'y a pas de cave) est au rez-de-chaussée et il contient le département d'impression et la chaufferie. Au second étage, se trouvent le bureau du secrétaire et celui de sa sténo-dactylo; les murs sont faits de panneaux de noyer. Les bureaux du personnel du Journal sont au troisième étage. En arrière de l'édifice, il y a un terrain de stationnement pouvant contenir dix voitures.

Le Conseil des Gouverneurs, en 1961, avait sanctionné le projet d'agrandissement. En 1960, le Conseil avait demandé au comité de l'immeuble du secrétariat de préparer des plans. Ce comité, à la mesure des progrès réalisés dans son travail, en faisait part régulièrement au Conseil et au Conseil Exécutif. La construction, après plusieurs retards dans l'approbation des plans par le conseil municipal, fut définitivement commencée au printemps dernier. D'autres retards survenus au cours des travaux — telle une grève des menuisiers — ont empêché de les terminer à la date prévue. Tout était terminé pour la réunion du Conseil Exécutif qui a eu lieu au milieu de février.

TOURNÉE DU PRÉSIDENT DANS L'OUEST

Le docteur James Zimmerman, président de l'Association dentaire canadienne, a commencé sa tournée dans l'ouest, le 22 février. Il a fait part des entreprises de l'association aux sociétés dentaires de onze municipalités s'échelonnant de Sudbury, Ontario, à Victoria, C.B. et aux étudiants des universités de Manitoba et d'Alberta. Le docteur Don W. Gullett, le secrétaire, a accompagné le président.

Voici la liste des villes qu'il a visitées: Toronto, le 20 février; Sudbury, le 22 février; Winnipeg, le 24 février; Regina, le 25 février; Saskatoon, le 26 février; Edmonton, le 27 février; Grande Prairie, le 28 février; Victoria, le 2 mars; Vancouver, le 3 mars; Parksville, C.B., le 4 mars; Calgary, le 5 mars; Lethbridge, le 6 mars.

RÉUNION DU CONSEIL D'ENSEIGNEMENT

Le conseil d'enseignement de l'Association dentaire canadienne s'est assemblé à Toronto, les 6 et 7 février dernier. Aux six membres du conseil s'étaient joints les doyens de toutes les facultés dentaires. Deux représentants du conseil d'enseignement de l'Asso-

ciation dentaire américaine ont pris part aux délibérations.

Immédiatement avant la réunion du conseil a eu lieu une conférence sur l'enseignement de la pédodontie. Les professeurs de pédodontie de toutes les facultés dentaires canadiennes ont assisté à cette conférence qui était sous la présidence du docteur W. H. Feasby, de l'Université de Manitoba. Le docteur Jean-Paul Lussier, de Montréal, est président du conseil d'enseignement qui a organisé plusieurs conférences de pédagogie du genre.

HISTOIRE DE LA PROFESSION DENTAIRE CANADIENNE

Le Conseil Exécutif de l'Association dentaire canadienne a chargé le docteur Don W. Gullett de compiler les documents nécessaires et d'écrire une histoire de la profession dentaire du Canada. Cette décision fait suite à la suggestion prise à sa réunion de l'année dernière par le Conseil des Gouverneurs, qui désirait qu'on entreprenne aussitôt que possible la rédaction de l'histoire de la profession dentaire du Canada. Il faudra beaucoup de temps pour collectionner les documents indispensables à un tel travail. Le docteur Gullett prend sa retraite cette année comme secrétaire de l'A.D.C.

ON PEUT SE PROCURER LE FILM SUR LA CYTOLOGIE

On peut se procurer à la bibliothèque de l'Association dentaire canadienne la pellicule cinématographique qui décrit la technique des frottis pour diagnostiquer les tumeurs. Ce film a été montré au cours de la réunion des secrétaires provinciaux et des représentants des facultés dentaires, en décembre dernier. Il est sonore et en couleurs; il dure dix-sept minutes et demi. On recommande cette pellicule aux sociétés dentaires.

L'A.D.C. RENCONTRE LES JOURNALISTES

Les dirigeants de l'Association dentaire canadienne ont récemment rencontré à dîner des représentants seniors de la presse. On a discuté franchement de diverses questions touchant la profession dentaire, en particulier de la fluoration. Cette rencontre eut lieu pendant que les membres du Conseil Exécutif étaient à Toronto pour leur réunion annuelle. Des rédacteurs des sections éditoriales et scientifiques des journaux ainsi que des délégués de Radio-Canada étaient présents.

ON NE POURRA PAS UTILISER DES BILLETS DE CHEMIN DE FER À PRIX RÉDUITS POUR LE CONGRÈS

L'Association canadienne des passagers fait part qu'il ne lui sera pas possible de disposer de billets de chemin de fer à prix réduit pour le congrès d'Edmonton, comme elle le faisait depuis quelques années. Les prix spéciaux de congrès ont été abolis en raison des réductions considérables qui ont été effectuées sur le coût des billets pour le public en général. Le congrès conjoint de l'Association dentaire canadienne et de celle de l'Alberta aura lieu, cette année, à Edmonton, du 28 juin au 1er juillet.

Les facultés dentaires

DEUX RÉCENTS GRADUÉS DE MONTRÉAL NOMMÉS "RESEARCH FELLOW" A FORSYTH-HARVARD

Maurice M. Houde et Gérard K. Tabourian, de la promotion 1963 de l'Université de Montréal, qui poursuivent présentement leurs études à titre de Clinical Fellow au Forsyth Dental Center, à Boston, viennent d'être promus au titre de "Research Fellow" dans la même institution, ainsi qu'à l'Ecole de Médecine Dentaire de l'Université Harvard. Ces promotions sont effectives à partir du 1er juillet 1964.

dentistry in the news

The Association

BRITISH DENTAL ASSOCIATION PRESIDENT CALLS AT C.D.A. HEADQUARTERS

British Dental Association President Desmond Greer-Walker was a recent visitor at Association headquarters in Toronto. Dr. Greer-Walker, who is on the staff of the Royal Dental Hospital of London School of Dental Surgery, University of London, visited various dental centres across Canada in the course of a Commonwealth tour that takes him and Mrs. Greer-Walker on to New Zealand, Australia, Singapore and India before finally returning to Britain.

Canada and the Provinces

DENTISTS PRAISED FOR SERVICES IN RURAL ALBERTA

Volunteer dental services to Alberta rural areas continue to receive enthusiastic acceptance, according to a recent report in the *Edmonton Journal.*

Using portable equipment supplied by the provincial health department, Alberta dentists voluntarily visit rural areas not served by a resident dentist. Residents of these areas thereby save the time and cost of travelling to larger centres for necessary dental treatment. Requests from communities desiring this service are screened by the Alberta Dental Association. Thirteen communities have benefitted from 36 visiting programs during the past three years.

HOSPITAL DENTISTRY SEMINAR SLATED FOR SCARBOROUGH, ONTARIO

Scarborough General Hospital, Scarborough, Ontario, will offer a two-day course on hospital dentistry next October 15 and 16. This is the second annual seminar of this type to be held at this east suburban Toronto hospital. Attendance at the course is limited. The registration fee is $50 and includes luncheons. Applications for registration should be addressed to the Course Registrar, E. G. Bertrand, Scarborough General Hospital, 3050 Lawrence Ave. East, Scarborough, Ontario.

DENTURISTS RECRUIT

"Like the dentists, we plan to go into the high schools and get young men and women to take the dental mechanics course at the university." So said Clarence Phipps, president of the Alberta Denturists Society, according to the February 25 issue of the *Winnipeg Free Press.* Mr. Phipps was in Winnipeg at the time to help Manitoba denturists in their fight to make dentures legally for the public without working through a dentist. A bill to this effect was apparently being readied for the legislature by Fred Groves (P.C.-St. Vital). The Manitoba government, however, intends to refer the denturist matter to a special committee, rather than try to introduce legislation at this session. For the record, no Canadian university trains dental mechanics.

EDUCATION FUND GRANTS MONEYS

The Canadian Fund for Dental Education will allocate up to $6,000 to further dental education in 1964. Teacher training fellowships will receive priority this year.

The fund has received approximately $35,000 since it was inaugurated a little over a year ago. This year it will make its first educational grant. The fund operates under a trust deed administered by the Canadian Dental Association. Its headquarters are at 234 St. George Street, Toronto 5, Ontario. Purpose of the fund is to serve as a vehicle for collection and distribution of voluntary contributions in support of dental education.

Living memorial contributions which honour the memory of departed relatives and friends have become a valuable source of revenue for the fund. Many dental organizations have adopted the policy of making living memorial contributions in lieu of donating flowers.

Dental Organizations

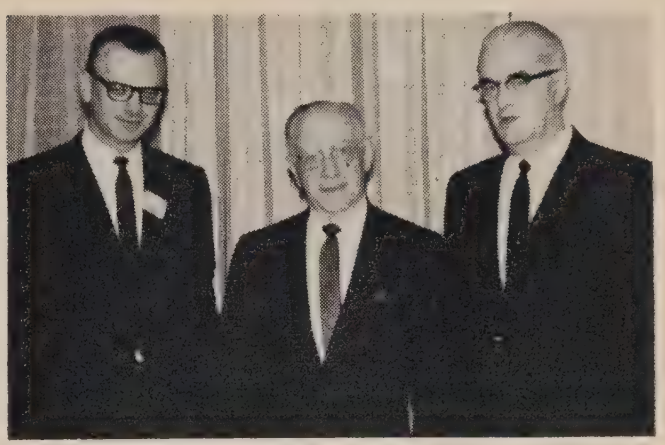
CYTODETECTION DESCRIBED FOR SAINT JOHN DENTISTS

R. B. Abel, pathologist at Lancaster, New Brunswick, D.V.A. Hospital, described the application of cytology to early detection of malignant oral lesions for members of the Saint John Dental Society at that group's March meeting. Dr. Abel outlined the proper procedure to be followed and interpreted several changes encountered in malignant and pre-malignant conditions. He also reviewed the history of cytology from its inception in 1838 to the current introduction of fluorescent stains.

VANCOUVER SOCIETY ADVISED TO PREPARE FOR ROYAL COMMISSION REPORT

Canadian Dental Association Secretary D. W. Gullett has urged all provincial corporate members to have steering committees ready to study the report of the Royal Commission on Health Services as soon as it is released. Speaking to the Vancouver and District Dental Society on March 3, Dr. Gullett also referred to the critical importance of C.D.A. surveys of dental practice as a source of reliable information about current practice patterns in dentistry. Results of the third (1964) survey of dental practice are now being tabulated by the C.D.A. Bureau of Economic Research.

Dr. Gullett, who retires at the end of this year, received a standing ovation with prolonged applause at the conclusion of his address. He was in Vancouver with Association President James Zimmerman in the course of the 1964 annual presidential tour of western Canada.



Canadian Dental Association president James Zimmerman (centre) and secretary D. W. Gullett visited Vancouver on March 3 during the annual presidential tour of western Canada. They are seen here with Vancouver and District Dental Society president R. K. Lindsay (l.).

VANCOUVER SOCIETY HAS FOUR NEW LIFE MEMBERS

R. D. Shortreed, R. Jamieson, R. W. Hall and O. R. Hougen were formally installed as life members of the Vancouver and District Dental Society on March 3. The society now has 16 life members. Each has been a member for at least 20 years and has been in practice for 45 years.

MOUNT ROYAL SOCIETY CONCLUDES BUSY SEASON

Montreal's Mount Royal Dental Society recently concluded its 1963-64 scientific program with a discussion of speech therapy in relation to clinical dentistry. This was presented by Mrs. Mary Cardozo, director of speech clinics at Montreal Children's and Montreal General Hospitals.

Four new life members of the Vancouver and District Dental Society are (l. to r.) R. D. Shortreed, R. Jamieson, R. W. Hall and O. R. Hougen.

Other scientific highlights during the past year were:

The D. P. Mowry Memorial Lecture delivered in September by Arthur Elfenbaum, professor emeritus at Northwestern University and University of Illinois Dental Schools;

A subsequent two-day course on oral radiographic diagnosis, also conducted by Dr. Elfenbaum;

A lecture on growth in relation to clinical dentistry, given in October by I. Prosterman, Montreal orthodontist;

A discussion of clinical management of oral infection, conducted in December by Eric Miller of McGill University;

A seminar on problem prevention and control in complete oral prosthesis, presented in January by Joseph Landa of New York University; and

A discussion on restorative dentistry, conducted in March by Jerome Schweitzer, also of New York University.

Fluoridation

OTTAWA ISSUES FLUORIDATION STATEMENT

The following statement on fluoridation was given in Parliament on March 23 by the parliamentary secretary to the Minister of National Health and Welfare in answer to a written question by Joseph Slogan (P.C. Springfield), a dentist. The reply is quoted in full from *House of Commons Debates*. (See also editorial comment in this issue).

Mr. Munro: 1. Expenditures on projects submitted by the provinces and supported under the national health grants relating to research into the effects of water fluoridation and the effects of topical application of fluorides to the teeth total approximately $51,400.

So far as intramural research is concerned, in view of the fact that personnel of the Department of National Health and Welfare from three divisions and one directorate have been engaged intermittently over a period of 16 years on research into the effects of fluoridation, including topical fluorides, while at the same time working on other programs, it is not possible to segregate expenditures on this project.

2. It is an established fact, from very extensive research, that the adjustment of the fluoride content of a water supply, whereby there is a concentration of one part fluoride to one million parts of water, brings about an average reduction of 60 per cent in the prevalence of tooth decay to children consuming fluoridated water since birth. No ill effects have been noted.

This improvement in dental health of children, who will later be adults, ensures an improvement in general health, dental health being an integral part of total health.

3 and 4. The activities of the Department of National Health and Welfare in relation to fluoridation have from the beginning been limited to research, the publication of research findings and the provision of technical advice and information. No advice has been given for the specific purpose of influencing policy decisions.

However fluoridation of communal water supplies is of broad public interest and is considered to be of great importance in the total health picture of the population of Canada. As of November 1963 more than 3,800,000 people, or 20 per cent of the population, in 188 communities were consuming mechanically fluoridated water.

In addition to the 20 per cent of the Canadian population who are consuming water with fluoride content adjusted to one part per million, many thousands of people have been consuming for a lifetime, and even for generations, water which has been fluoridated from underground deposits of fluoride. No ill-effects have been observed.

FLUORIDATION RULED LEGAL IN CHICAGO

Chicago's right to fluoridate its water supply was upheld by a ruling of the Supreme Court of Illinois on March 18. A previous injunction suit brought by opponents of fluoridation against the city had been dismissed by the Superior Court of Cook County in June 1962. In writing of the unanimous opinion of the high court, Supreme Court Chief Justice J. E. Daily said, "There appears to be extraordinary accord that fluorides act to prevent and reduce tooth decay and that artificial fluoridation to the extent of one part per million parts of water will not, either presently or cumulatively, result in harmful systemic effects." That artificial fluoridation of water is related to public health and that the program adopted by Chicago is necessary and suitable for the protection of public health was the conclusion of the court.

According to Chicago health commissioner S. L. Andelman, tooth decay among the children there has decreased about seven per cent yearly since fluoridation was inaugurated May 1, 1956. A saving of a quarter of a million dollars in dental bills has been the result.

Economics

NEW WORKMEN'S FEE SCHEDULE NEGOTIATED IN B.C.

A new Workmen's Compensation Board schedule of dental fees became effective in British Columbia on February 15. Fees for

such services as gold inlays and crowns are now closer to being adequate and in most instances the fees are based on the British Columbia Dental Association fee schedule less 10 per cent. The schedule which will be reviewed in two years time has been described as the fairest W.C.B. schedule to date.

DENTAL EDUCATION COSTS RISE

Dental education costs climbed to a new high last year, according to the 1963-64 Dental Students' Register published by the C.D.A. Bureau of Economic Research. The average cost of university expenses for the four dental years is $4,122 ($3,878 in 1962-63). The average cost of room and board is $3,170 ($2,876) making a total average cost of $7,292 ($6,754). The full "Register" was published in the April issue of the Journal.

Awards and Honours

J. A. SHERMAN, of Toronto, received the Award for Meritorious Service at the 50th Annual Convention of the Alpha Omega Fraternity in Miami Beach last December. This is the highest honour that Alpha Omega can bestow.

JAMES ZIMMERMAN, of Calgary, president of the Canadian Dental Association, was made an honorary member of Alpha Omega Fraternity at the December Miami Beach convention.

CANADIAN DENTAL ASSOCIATION	
1964 Annual Meeting: Edmonton	
Board of Governors	June 24-27
National Convention	June 28-July 1

conventions • congrès

Charlottetown welcomes Atlantic Provinces convention, July 5-8

This year's Atlantic Provinces Dental Convention, July 5-8, coincides with celebration of the centenary of the first meeting of the Fathers of Confederation in this Gulf of St. Lawrence island capital in 1864 (see p. 36 of the January issue of the Journal). The convention opens on Sunday evening, July 5 at 7:30 p.m., when visitors will be entertained at a reception and buffet dinner tendered by the City of Charlottetown at the Charlottetown Hotel.

Featured on the scientific program are these clinicians and essayists:

P. G. Anderson, Toronto: Operative dentistry

J. L. Bernier, Maj.-Gen., U.S. Army, Washington: Pathology and periodontics

R. H. Bingham, Halifax: Oral medicine

A. J. Wilson, Windsor, Ontario: Oral surgery

A. L. Posen, Toronto: Orthodontics

An excellent display of table clinics rounds out the scientific program. Other attractions include golf, swimming and a variety of social events.

Early reservations for accommodation are recommended. Requests for accommodation should be directed to J. P. McIntyre, 152½ Great George Street, Charlottetown, P.E.I. Further information concerning convention activities may be secured from L. I. Duffy, general convention chairman, 202 Queen Street, Charlottetown, P.E.I.

announcements • avis

CANADIAN DENTAL ASSOCIATION		FÉDÉRATION DENTAIRE INTERNATIONALE		
1964	Edmonton	June 28-July 1	San Francisco	November 7-14
1965	Quebec City	May 30-June 2	Vienna	June 26-July 3
1966	Halifax	June 12-15	Israel	
1967	Toronto	May 14-17	Paris	

June 10-12, 1964	Netherlands Dental Association	Kurhaus Hotel, Scheveningen	Dr. J. Stork	Goekooplaan 1, 's-gravenhage, The Hague, Holland
18-24 juin, 1964	Semaine odontologique internationale	Porte de Versailles, Paris, France	M. Jacques Charon	12 rue du 4-Septembre, Paris 2e, France
June 21-July 4, 1964	First Ibero-American Endodontic Congress	National University, Mexico City	Dr. M. Carillo	Calle Hamburgo 250,, Mexico 6, D.F., Mexico
June 25-28, 1964	Anglo-Continental Dental Society	London, England	Dr. R. O. Leaver	76 Heaton Park Drive, Bradford 9, Yorkshire, England
June 28, 1964	Canadian Society of Dentistry for Children	Macdonald Hotel, Edmonton	Dr. C. R. Castaldi	Faculty of Dentistry, University of Alberta, Edmonton, Alta.
June 28, 1964	Canadian Academy of Periodontology	Macdonald Hotel, Edmonton	Dr. J. E. Speck	170 St. George Street, Toronto 5, Ont.
June 29-30, 1964	Canadian Society of Oral Surgeons	Macdonald Hotel, Edmonton	Dr. D. H. MacDonald	2 College Street, Toronto 2, Ont.
June 29-July 1, 1964	Canadian Society of Orthodontists	Macdonald Hotel, Edmonton	Dr. J. J. Schachter	209 Canada Bldg., Saskatoon, Sask.
June 29-July 3, 1964	British Dental Association	London, England	Dr. J. N. Peacock	13 Hill Street, London, W.1, England
July 5-8, 1964	Atlantic Provinces Dental Convention	Charlottetown, Prince Edward Island	Dr. L. I. Duffy	202 Queen Street, Charlottetown, P.E.I.
July 7-10, 1964	American Dental Society of Europe	Brighton, England	Dr. A. E. F. Sturridge	35 Harley Street, London, W.1, England
July 7-11, 1964	European Orthodontic Society 40th International Congress	Athens, Greece	Prof. H. N. Haralabakis	Acadimias 31, Athens 135, Greece
Aug. 2-8, 1964	1st International Dental Congress of Venezuela	Caracas, Venezuela	Dr. P. E. Henriquez	Apartado de Correos 1341, Caracas, Venezuela
Aug. 24-28, 1964	New Zealand Dental Association	University of Auckland, Auckland, N.Z.	Mr. D. I. Pert	12 Kitchener Street, Auckland C.1, N.Z.
Sept. 10-12, 1964	Newfoundland Dental Society	Corner Brook, Newfoundland	Dr. R. W. MacLeod	63 Broadway, Corner Brook, Nfld.
Sept. 11-13, 1964	Northern Ontario Dental Association	North Bay, Ontario	Dr. R. C. Weegar	539 Cassells Street, North Bay, Ont.
Sept. 27-29, 1964	Eastern Ontario Dental Association	Skyline Hotel, Brockville	Dr. K. L. Hargadon	298 Elgin Street, Ottawa 4, Ont.

Note • Due to lack of space the Journal cannot accommodate all announcements of foreign dental meetings and postgraduate and refresher courses. Readers are invited to write to C.D.A. headquarters for information concerning unlisted meetings and courses. Further information concerning listed meetings and courses should be sought from the sponsoring institution.

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Multilayer tomography in radiographic examination of temporomandibular joints

H. G. Poyton, F.D.S., H.D.D. and Gunnar Lie, †D.D.S.,*
Toronto, Ontario

Body section radiography is used to show a thin layer in a mass and is known by synonymous terms such as planigraphy, stratigraphy, laminagraphy, and tomography. The principle of tomography was first described by Bocage in 1922,[1] and both single layer and multilayer techniques have been used for many years in general radiography. Single layer tomography has also been used in dentistry for investigations of the temporomandibular joint.[2,3] Recently multilayer tomography has been adopted for radiographic investigations of this joint.[4] The most obvious advantage of tomography in temporomandibular joint investigations is that a distinct profile image of any part of the joint is possible.

*Department of Radiology, and
†Department of Orthodontics, Faculty of Dentistry, University of Toronto.

Single layer tomography

Tomography is essentially a controlled movement of the x-ray tube and the film during radiographic exposure. The move-

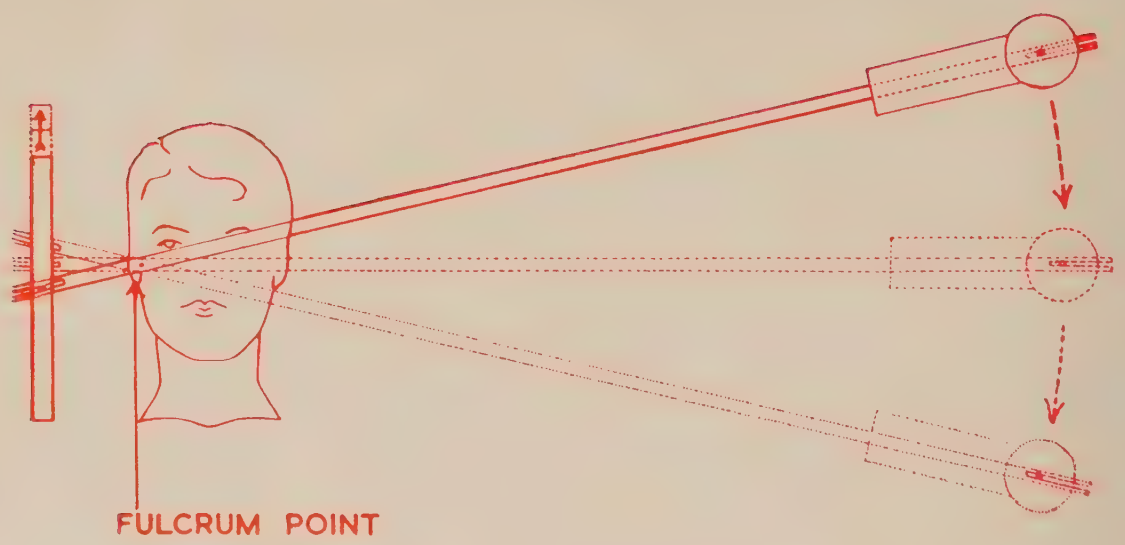


FIGURE 1 Diagrammatic representation of the principle of single layer tomography.

ment of these two components is in opposite directions about an axis, and in such a way that the shadow picture of a selected plane in the body remains stationary on the film. The axis of rotation is referred to as the fulcrum.

FIGURE 2 Single layer tomography of the temporomandibular joint of a dried skull.

Basically the requirements for the production of a tomographic radiograph are an x-ray tube and a film holder connected by a rigid bar. This bar rotates in one plane about an adjustable fulcrum which is situated between the x-ray tube and the film. The fulcrum must be adjustable in order to ensure its correspondence with the layer of the object under investigation.

During exposure the tube moves at a definite rate and amplitude along a straight or slightly curved pathway, and the film moves in the same plane but in the opposite direction. The type of force producing x-ray tube and film holder movement is immaterial, provided the displacement is smooth and of predetermined duration. In practice the force can be produced by hand, weights, spring loading, an electric motor or hydraulic power.

During exposure and the associated travel of the tube and film the x-ray beam is transpositioned through all parts of the object except at the layer corresponding to the fulcrum point. As a result this layer will be clearly visible in the developed film while all other areas of the object will be blurred (Figure 1). Structures on either side of the fulcrum are blurred to a degree proportional to

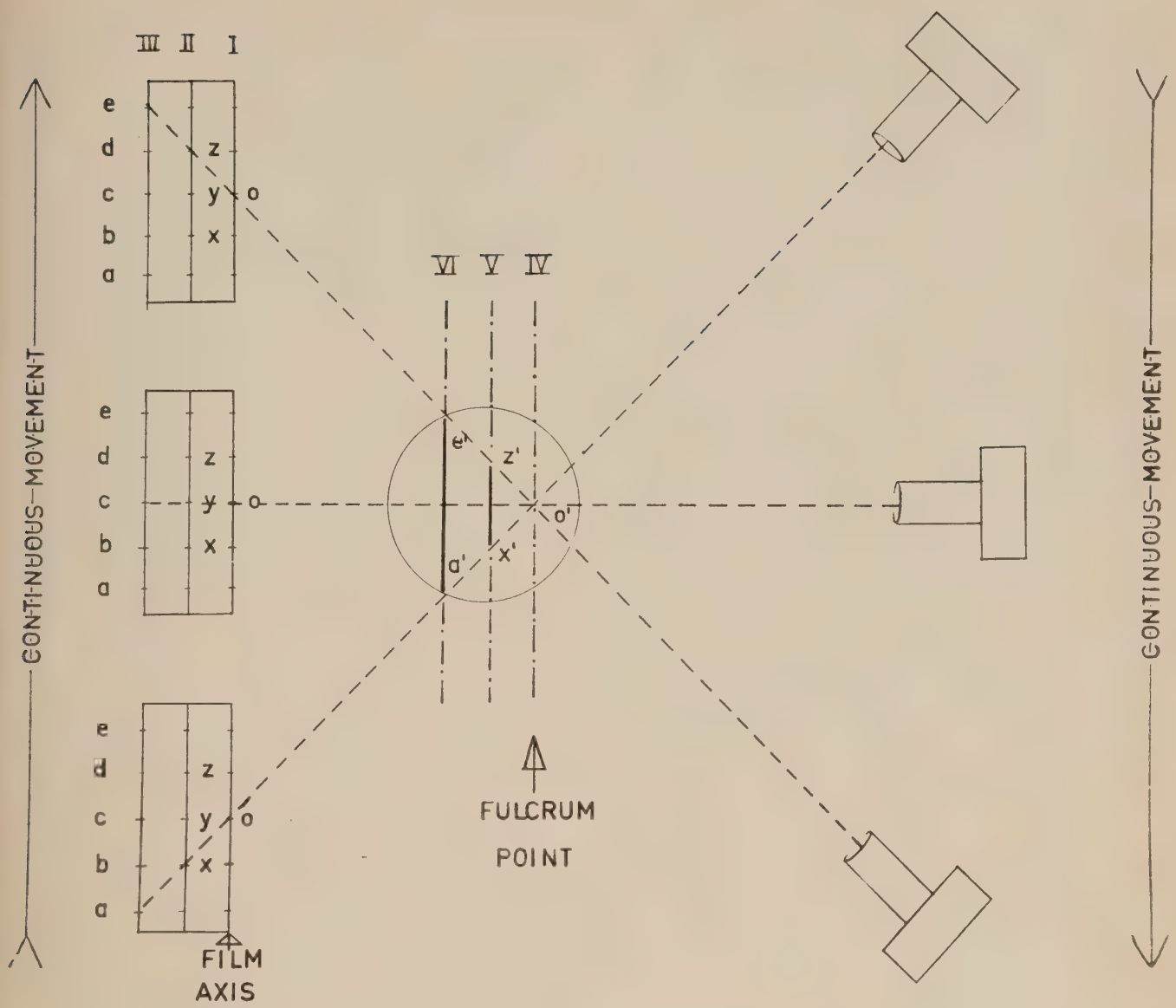


FIGURE 3 Diagrammatic representation of multilayer tomography.

their distance from this plane. Utilizing this general principle, the fulcrum is adjusted to be in alignment with the area of the skull which is under investigation.

From the practical aspect it is advisable to have the object-tube distance greater than the object-film distance. It is also an advantage to have the tube displacement as pronounced as possible, as the thickness of the layer remaining in sharp focus varies inversely with the tube displacement.

There are certain inherent disadvantages in tomography. The main one is the lack of a clearly defined outline. This is due to both the deliberate blurring of superimposed structures and the impossibility of obtaining a layer which is linear instead of possessing appreciable width (Figure 2). However, accuracy in construction of apparatus and avoidance of 'play' in movable parts can diminish such advantages until they are no longer significant.

Mutilayer tomography

Multilayer tomography permits several parallel layers to be radiographed with only one exposure. Thus it is possible to register simultaneously all points in planes IV, V, and VI (Figure 3).

Theoretically the number of films which can be used is limited only by the materials available, but in practice three to

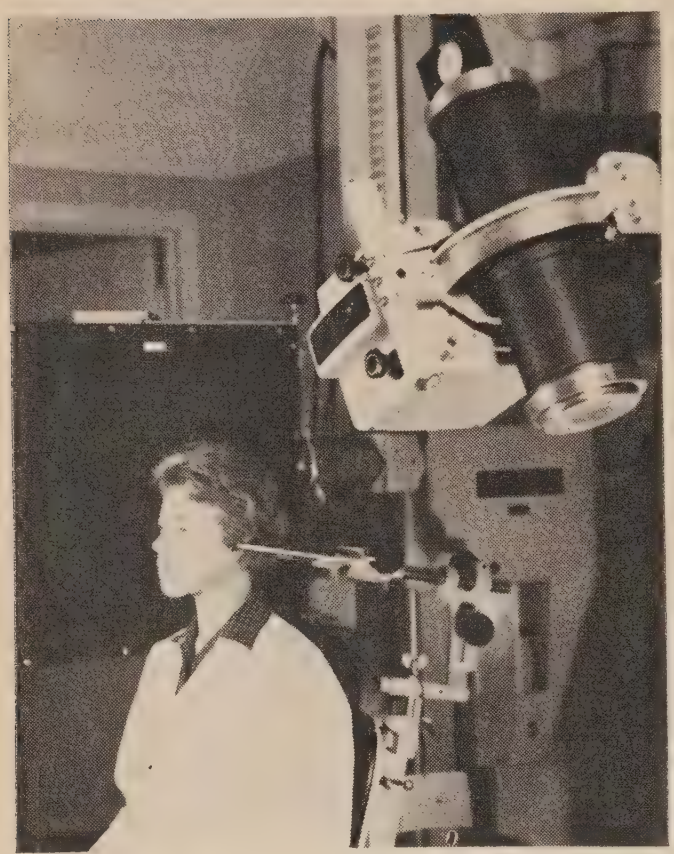
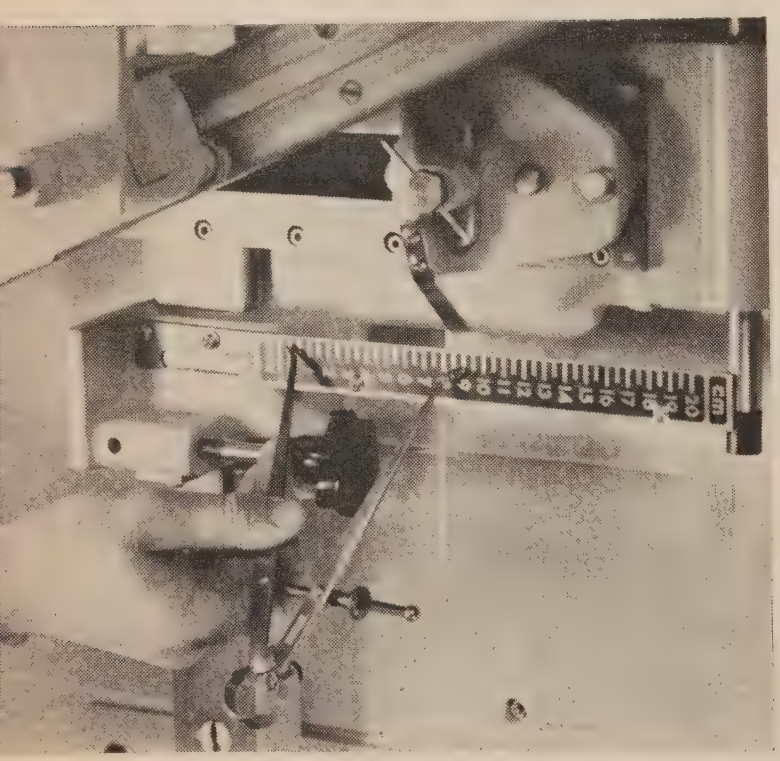


FIGURE 4 Apparatus immediately before commencement of exposure.

five films are most commonly used. In the subsequent text a three-film procedure is described.

FIGURE 6 Measurement on the scale for fulcrum adjustment.



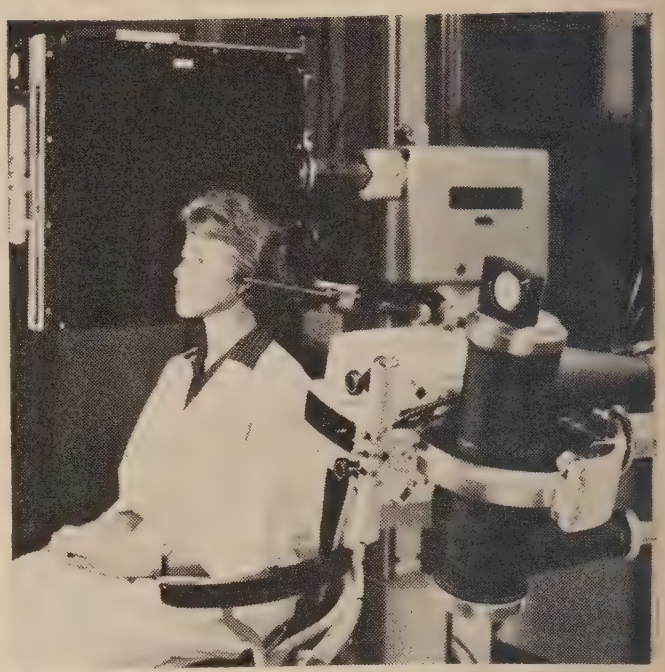


FIGURE 5 Apparatus immediately after exposure.

Principles. — The reference points in the following description are shown in Figure 3. During movement of the tube and film, x-rays pass through the object and the three films (marked on diagram — I, II, and III). The rays passing through point 'O' on plane IV are stationary in relation to this plane because the fulcrum is located at 'O'. The rays also strike the film at plane I at the same point throughout the excursion of movement because the film axis is located at plane I; therefore, these rays are stationary relative to the film at plane I. Consequently the radiograph produced at plane I corresponds to plane IV of the object.

During exposure, at plane V the rays are transpositioned from X^1 to Z^1. At film II the rays move from X to Z. If the magnification factor is ignored, X^1 Z^1 equals X Z because the projection on the film of a point in plane V has travelled a distance equal to the film displacement. Therefore planes V and II are stationary in relation to each other, and the radiograph produced on film II corresponds to layer V of the object. It follows that the projection of a point in a plane other than V will not have travelled a distance equal to the film displacement, and is therefore blurred.

Similarly, during exposure at plane VI the rays are transpositioned from a^1 to e^1. At film III the rays also move from a to e. a^1 e^1 equals ae; therefore planes VI and III are stationary in relation to each other and the radiograph produced on film III corresponds to layer VI of the object.

Technique.—We employed the following equipment and apparatus for our investigations:

The X-Ray Tube. — A rotating anode, double focal spot x-ray tube was used. It was attached to a vertical column on which it could slide freely during exposure (Figures 4 and 5). The force producing movement of the tube was a system of weights adjusted to take one second for the sweep.

An adjustable collimator with a visual representation of the centre ray was used in conjunction with the tube (Figure 4).

Head Position. — The head was in the lateral skull position, and the sagittal plane was maintained at right angles to the centre beam of the x-ray by means of a craniostat.

The craniostat must be rigid and must, of course, have no connection with the film holder. In this series the craniostat was attached to the back of the dental chair (Figure 4). The centering device on the collimator ensured correct alignment of the ear rods.

Fulcrum. — The fulcrum was attached to the wall. It was adjustable in the horizontal and vertical planes, and adjustments were recorded on a centimetre scale (Figure 6).

In ideal circumstances the attachment of the connecting bar to the film axis would be exactly at the level of the front film, and it would then be possible to adjust the fulcrum to coincide with the required point in the condyle. However, in the apparatus used here there were some imperfections of construction which had to be compensated for. The method of calculation of the correct fulcrum position appears below.

FIGURE 7 Measurement between the film-holder and the skin covering the temporomandibular joint.

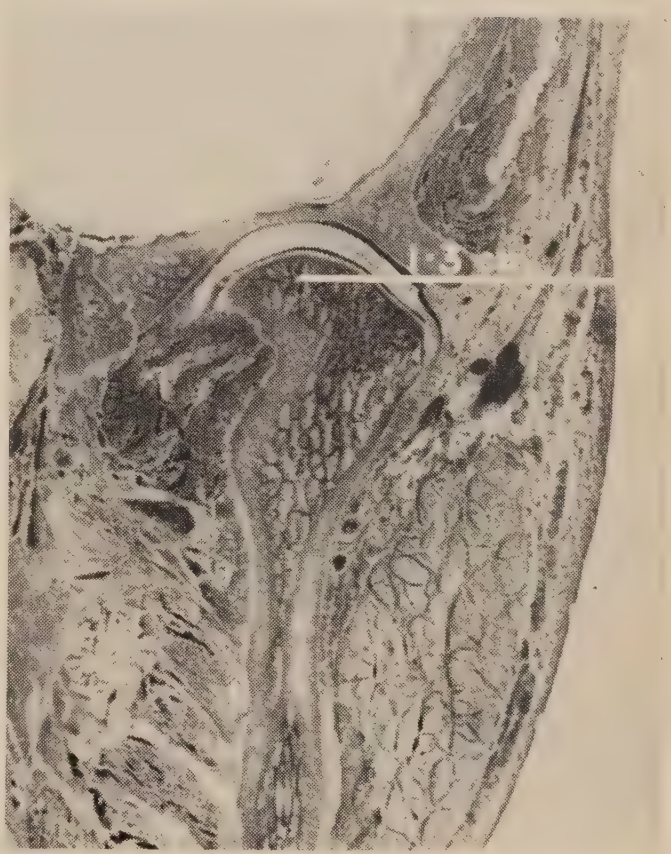


FIGURE 8 Coronal section through the temporomandibular joint.

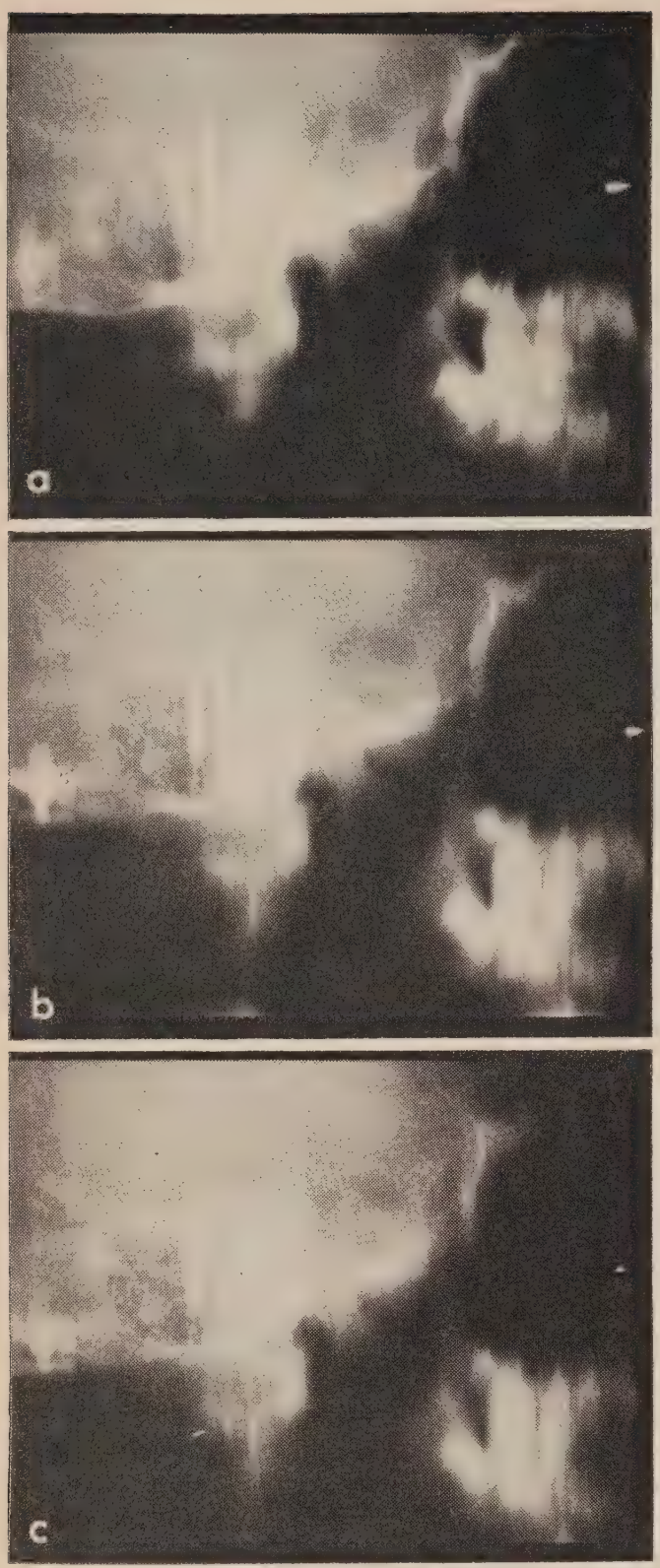


FIGURE 9 Three views of different layers of a temporomandibular joint taken by means of multilayer tomography. (a) The medial side of the joint. (b) Approximately the centre of the joint. (c) The lateral side of the joint.

Film Holder.—To minimize the scattered radiation reaching the film, an oscillating Potter-Bucky diaphragm of a 12:1 ratio was used. Behind this was a cassette containing intensifying screens of different sensitivity and three films. The intensifying screens in contact with the three films were of different sensitivity in order to compensate for attenuation of the x-ray beam, and thereby to produce uniformity in the three radiographs. The intervening medium between the films was a radiolucent plastic, but any radiolucent material can be used provided the films are parallel and held firmly in a vertical position.

By experiments on dry skulls it was found that the thickness of a section which remains in sharp focus is slightly less than 3 mm. Thus it is possible to get at least three sharp cuts through an average condyle.

The film holder was attached to a second vertical column on which it could slide freely during exposure.

Exposure Factors.—The exposure factors were as follows: milliamperage 200, time 1 second, kilovoltage 74 to 80. The kilovoltage was varied according to the size and age of the patient. The horizontal focus-film distance was 100 cm. The body section to film distance was variable depending upon the patient. The vertical tube displacement was approximately 50 cm.

Adjustment of the Fulcrum.—In ideal circumstances the position of the fulcrum can be calculated by direct measurements either from the sagittal plane to the centre of the condyle or from the skin surface to the front of the film holder. With the former method it is necessary to have a symmetrically operating craniostat which at all times has the sagittal plane in line with a certain point on the horizontal scale of the fulcrum adjustment. From a postero-anterior cephalogram the distance is measured from the sagittal plane to a given point in the condyle; this distance is then transferred to the horizontal scale of the fulcrum adjustment.

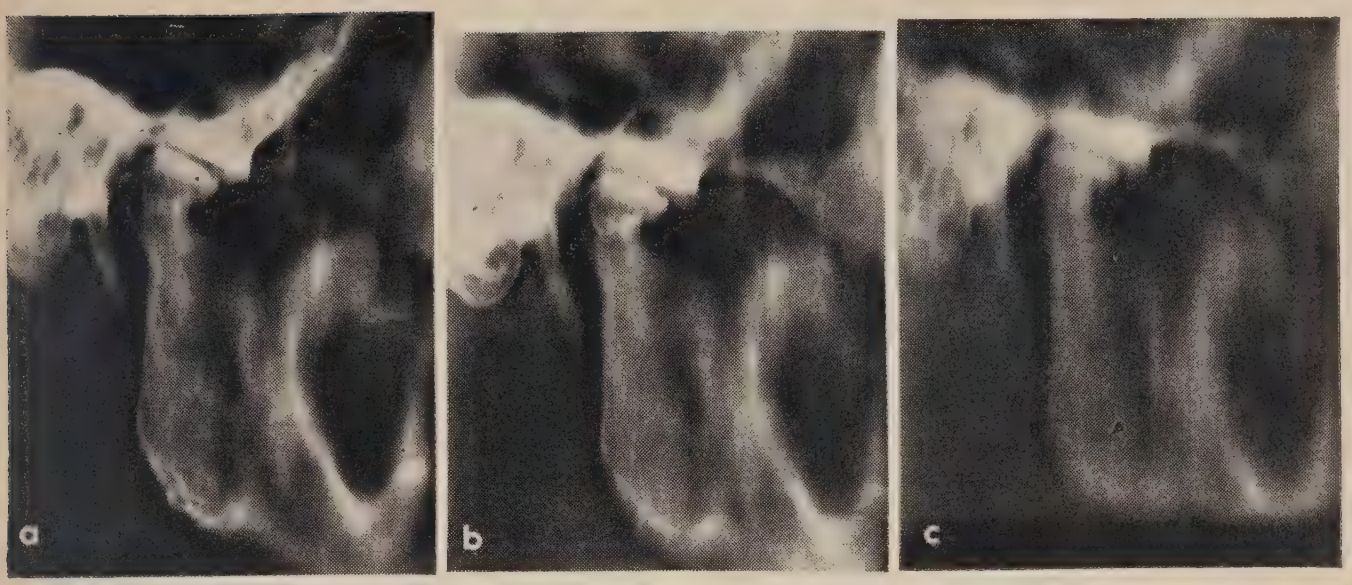


FIGURE 10 Three radiographic layers of a temporomandibular joint in which there are arthritic changes.

The method of measuring from the skin surface to the front of the film holder (Figure 7) has certain advantages in that it is quicker, easier, and obviates the necessity of an additional radiograph.

To obtain the exact measurement from the film to a given point in the condyle allowance must be made for the distance from the front film to the front of the Potter-Bucky diaphragm and for the thickness from the skin surface to the desired point in the condyle. The distance from the Potter-Bucky diaphragm to the skin surface is then measured directly and the combined measurement is transferred to the horizontal scale. The fulcrum can then be positioned accordingly.

To determine the relationship of the condyle to the surface of the skin a series of standard postero-anterior cephalograms were taken with the soft tissue moderately depressed by the tip of the calipers. The mean distance from the surface of the skin (depressed) to mid-condyle was found to be 1.3 cm. (Figure 8).

Our apparatus possessed certain imperfections and one fault necessitated compensation in calculations. This was the position of the axis at the film end of the bar, which was 3.6 cm. posterior to the plane of the front film.

A fulcrum position based on a mid-sagittal plane calculation obviously would not give a radiograph coincident with the desired plane. Since the film axis was not adjustable, the fulcrum position was recalibrated in the following way. First, the fulcrum scale was set at zero at the level of the front of the Potter-Bucky diaphragm. If the Potter-Bucky—skin distance were 8 cm. (a convenient distance), mid-condyle would be 1.3 cm. further to the right at 9.3 cm. However to compensate for the film axis error, the fulcrum had to be moved 3.6 cm. to the left to 5.8 cm. With the pointer in this position the scale was now moved 2.2 cm. to the left so that the pointer was showing 8 cm. on the scale, i.e., a distance identical with the Potter-Bucky—skin distance.

Uses of multilayer tomography

Pathological conditions of the temporomandibular joint may be investigated by this method. This has the advantage of giving several views of the joint in different planes (Figure 10).

Multilayer tomography can likewise be utilized in cleft palate cases.[5] The patient is seated in the postero-anterior position, and with two exposures, using five films in each, ten equally spaced coronal sections of the palate may be viewed.

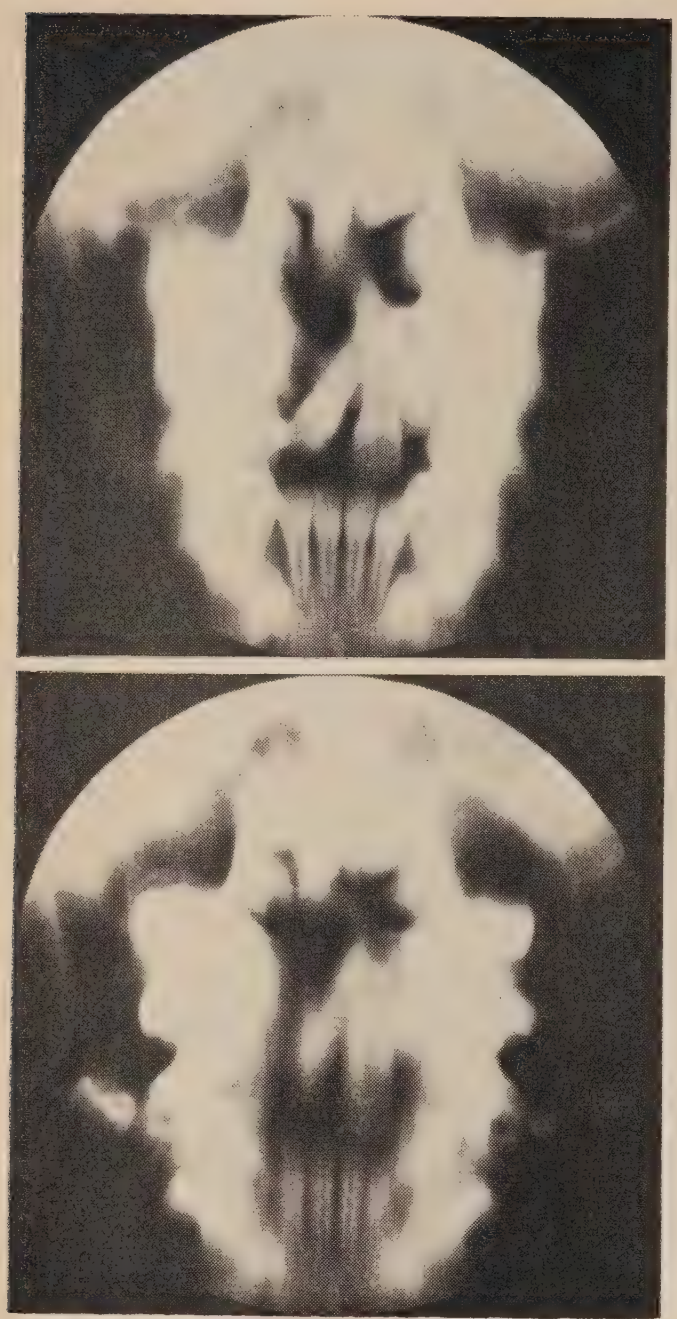


FIGURE 11 Multilayer tomography in the investigation of a cleft palate. Two views of different areas of the palate.

This technique is also useful in studying the position of the condyle in the glenoid fossa in various postures of the mandible. For accurate observations in a study of this nature a reproducible standardized technique of the utmost accuracy is essential. Tomography has certain advantages over other techniques in that there is no angulation of the beam to consider, there is no disturbance of muscle balance due to head tipping, and the joint can be viewed accurately in any plane.

Summary

Single layer and multilayer tomography in the radiographic examination of temporomandibular joints is discussed. The underlying principle is described and the practical details are explained. Applications of this radiographic procedure relate to pathological conditions of the temporomandibular joint, investigation of the position of the condyle in the glenoid fossa, and analysis of cleft palate cases.

Résumé

Les auteurs décrivent une technique pour la tomographie à couche unique et à couches multiples au cours de l'examen radiologique de l'articulation mandibulaire. Cette technique de radiographie s'applique pour les affections pathologiques de l'articulation mandibulaire, pour les positions du condyle dans la fosse glénoide et pour l'analyse des cas de fissures palatines.

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3. Ricketts, R. M. Laminagraphy in the diagnosis of temporomandibular joint disorders. J.A.D.A. 46:620, 1953.
4. Ingram, F. L. Personal communication, 1957.
5. Brader, Allen C. The application of the principles of cephalometric laminagraphy to studies of the frontal planes of the human head. Am. J. Orthodont. 35:249, 1949.

124 Edward Street

L'auteur décrit trois cas de résorption interne et tente d'expliquer leur étiologie par une réaction à l'inflammation présente dans la pulpe.

Internal resorption

H. E. Simpson, M.D.S.,
Newcastle-upon-Tyne, England

Essentially, there are two locations teeth can be resorbed. The process may arise at the external surface of the crown or root, or it may start at the pulpal surface of the dentine.

In the former case there are certain well-known causes. The condition is a normal process in the shedding of deciduous teeth; it may result from the pressure of cysts, tumours, other teeth or orthodontic forces; it may occur as a result of inflammatory processes in the periodontal membrane or following replantation. In some cases no satisfactory cause can be assigned to it and the term idiopathic is invoked.

Internal resorption, on the other hand, is always idiopathic. Although trauma often appears to be the exciting cause, its precise role is not at all clear and a history of injury is not always elicited. Thus Luten[1] describes internal resorption in both unerupted lower first molars of a six-year-old child. Manson Hing[2] reports a case of a mother and daughter with internal resorption of a permanent lower molar and two deciduous lower molars respectively. Hayes[3] reports two cases and Macansh[4] one with no history of trauma.

In the more severe examples, where large amounts of dentine are involved, it is difficult and may be impossible to distinguish between the two types of idiopathic resorption. Commonly, the condition is not observed until there is a definite perforation of the root and often also evidence of infection via the periodontal sulcus from which epithelium can grow into the excavation and complicate the picture. At this stage the distinction is purely academic, but before such gross destruction has occurred a tooth affected by internal resorption may be amenable to root filling.

In Rowe's case[5] a maxillary central incisor presented a small soft tissue mass at its gingival margin. This and the pulp were removed and root filling was performed. Two and a half years later the tooth was still symptom-free. It seems unlikely that external resorption would cease merely as a result of root filling. Hayes was also able to treat his two cases in this way.

There is a histological feature which may be of importance. In cases of patho-

From the Sutherland Dental School, University of Newcastle-upon-Tyne.

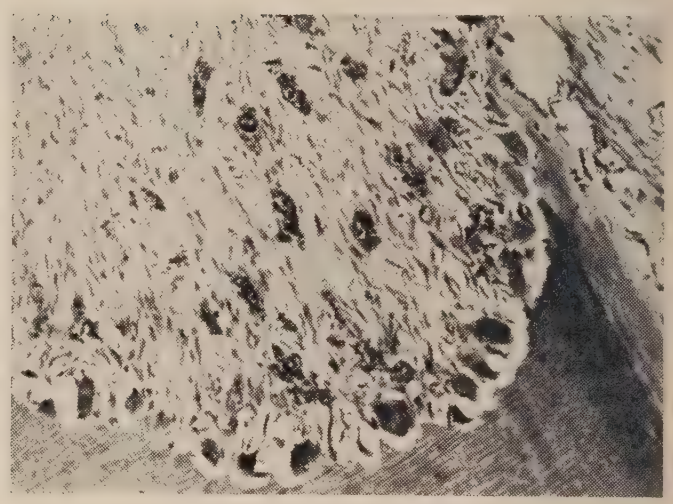

FIGURE 1 Mandibular first molar. Vascular pulp tissue in resorption cavity. Numerous osteoclasts occupy lacunae in the dentine. Haematoxylin and eosin, X140.

logical external resorption the pulp is often seen to be protected by a layer of dentine and predentine, although this is usually broken by the time the specimen is received either as a direct result of the disease or by damage during the removal of the tooth. When the resorption starts at the pulpal surface, this barrier will be missing, at least in the area where the process starts. However, a similar appearance may be produced in some part by undermining as the condition extends. In the following cases undermining was not observed, although Figure 1 suggests the manner in which it may be simulated.

Case 1. — Male aged 26. This patient had a pulpotomy performed on his left mandibular first molar in May 1962. In January 1963 he complained of tenderness when biting on this tooth. In May 1963 the papilla between the first two molars became enlarged and radiographs showed an area of radiolucence penetrating the distal wall of the distal root at the cervical margin. This root separated during the removal of the tooth. Histologically, the pulp tissue in both root canals showed a mild chronic inflammation and examination of the intact mesial root showed an incomplete dentine barrier beneath which was an area of acute inflammation. The distal root was too much damaged to demonstrate the equivalent region. In both root canals the odontoblasts were replaced by cubical cells which were laying down a cellular calcified material on the greater part of the walls. There was evidence of extensive resorption and repair of the dentine and in places an excess of repair tissue had been produced. Active resorption was occurring in some areas and the soft tissue filling the resorption cavities was similar to that of the contiguous pulp although it was more vascular. The resorption itself was associated with the presence of considerable numbers of osteoclasts (Figure 1).

Comment. — This case was presumably the result of an unsuccessful pulpotomy.

Whether the trauma of the operation or the observed inflammation was responsible for initiating the process is not certain, but it is interesting to observe the chronology of the disease. The perforation occurred not more than one year from the time of the operation and no abnormality was detected radiographically four months before the condition became obvious.

Case 2. — Female aged 20. The patient complained of two attacks of acute ulcerative gingivitis in six months. These had resulted in deep crater formation between the right mandibular lateral incisor and the retained deciduous cuspid. All four permanent cuspids were unerupted and the deciduous cuspids were retained. Radiographs showed apparent internal resorption of the right mandibular deciduous cuspid. Histologically, there was a symmetrical enlargement of the apical half of the root canal (Figure 2). Most of the surface of the dentine was covered by a thin layer of cellular secondary dentine but in some areas active resorption was occurring. The process had penetrated the root on its distal aspect. The pulp in the coronal part of the tooth was normal in appearance but at about the mid-point there was a heavy infiltration of lymphocytes and plasma cells. The pulp in the resorption cavity was fibrous and showed a mild chronic inflammatory infiltration. The perforation was in some sections considerably larger than is shown in the illustration, but the resorption was evidently from the inner surface and the blood supply to the soft tissue in the root canal appeared to be entirely from the apical foramen. There was a small amount of resorption of the external surface of the root attributable to the slow resorption of a retained deciduous tooth and to the effect of the unerupted permanent tooth.

Comment.—There is an element of controversy in this case as the tooth is a

FIGURE 2 Internal resorption of the root of a retained deciduous cuspid. Haematoxylin and eosin, X6.

FIGURE 3 (above R) Internal resorption in a carious mandibular bicuspid. Haematoxylin and eosin, X7.

FIGURE 4 Active resorption widening the root canal of a retained root in which the coronal extremity of the pulp was acutely inflamed. Haematoxylin and eosin, X140.

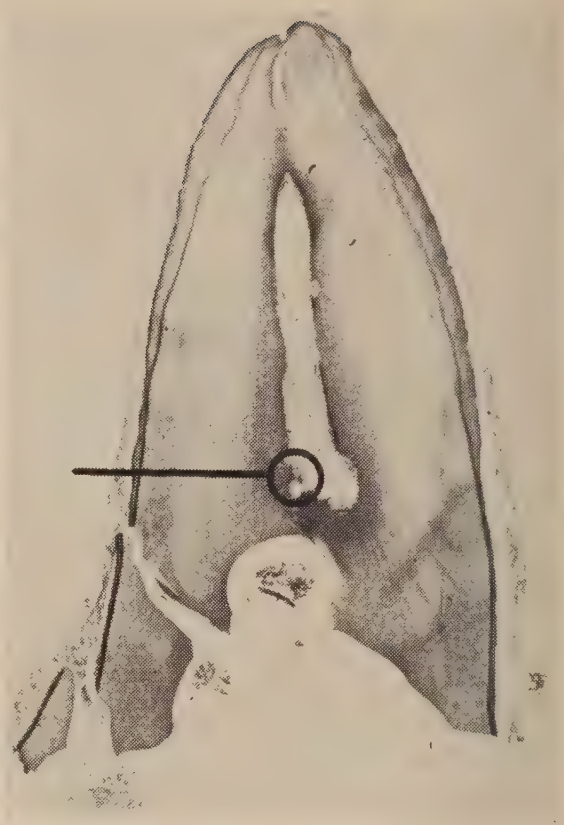

FIGURE 5 Internal resorption in a retained root several weeks after attempted removal. Haematoxylin and eosin, X140.

FIGURE 6 Repaired resorption in the root canal of a deciduous molar which had a large pulp polyp. Haematoxylin and eosin, X140.

deciduous one where resorption of the external surface would be expected. However, the normal resorption has progressed very slowly and does not seem to have influenced the perforation of the root to any marked extent. In some respects this case resembles that reported by Gould and Gould[6] where internal and external resorption of a maxillary second molar were associated with the presence of the ectopic third molar. The origin of the inflammatory infiltration in the central part of the pulp is not clear but may have been caused by infection or toxic matter from the deep crater adjacent to the tooth penetrating the denuded root.

Case 3. — Female aged 48. This patient complained of pain of one week's duration. On examination there was tenderness in the buccal sulcus in the left mandibular bicuspid area. Radiographs showed a large carious cavity and an enlargement of the root canal in the second bicuspid.

Histologically, there was a large re-

sorption cavity just below the cervical margin. The pulp chamber was empty (Figure 3).

Comment.—Although there was no soft tissue in the pulp chamber, evidence of resorption was present in the form of Howship's lacunae. It seems possible that the resorption in this case was the result of low-grade inflammation which, with the advance of caries, became more severe and destroyed the pulp.

Discussion

Little is known about the causes of internal resorption. Sometimes there is a history of trauma and it is possible that on occasion dental treatment may be responsible. In one of the above cases, a pulpotomy had been carried out and the tooth in Rowe's case was a bridge abutment.

A certain amount of additional information is available. A small degree of resorption may occur along the walls of the root canals in cases of pulpitis. The writer observed this in nine of 22 teeth which had been extracted because of toothache. Active and repaired resorption can also be seen in retained roots. Figure 4 shows the apical part of the root canal of a mandibular cuspid from which the crown had been fractured one week previously. The coronal part of the remaining pulp was acutely inflamed and the narrow apical region of the canal is being widened by osteoclasia to accommodate the greatly enlarged vessels.

The majority of pulps affected by pulpitis can be expected to die so that the resorptive process will be arrested before much destruction of dentine arises. But should the inflammation be mild or subside, it is possible that a good deal of resorption may occur.

Figure 5 shows an example of internal resorption in a retained root of several weeks after the incomplete extraction. There is now no evidence of inflammation, but the trauma of the injury must have set up some disturbance and quite possibly some degree of infection was also present immediately following the fracture.

It is usual to find some evidence of repair in the form of the deposition of calcified material resembling cellular secondary dentine or cementum. Thus the process of resorption is not necessarily continuous or irreversible. Figure 6 shows part of the root canal of a deciduous molar which exhibited a large pulp polyp. Here, perhaps in response to increased vascularity following exposure of the pulp, the canal has been irregularly widened and later, when the polyp has matured, the canal has been reduced although probably not to its original size in view of the large vessels present.

Conclusion

The association of internal resorption with inflammation seems to be borne out fairly consistently in the circumstances described. It remains to be seen how the condition can be explained in cases which appear to occur in the absence of this factor.

Summary

Three cases of internal resorption are described and an attempt is made to explain the onset of the process on the basis of a response to inflammatory conditions present in the pulp.

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Northumberland Road,
Newcastle-upon-Tyne 1

Effects of trauma from occlusion on the periodontium

R. G. Stephens, D.D.S., Halifax, Nova Scotia*

Le traumatisme occlusal est susceptible de causer une forme particulière de maladie du périodonte caractérisée par des modifications non inflammatoires des cellules. Ce même traumatisme peut agir comme facteur favorisant la diffusion des maladies inflammatoires du périodonte. Les pressions occasionnées par l'occlusion peuvent dépasser la tolérance du périodonte dans les cas de neurose occlusale où le support normal et les propriétés de réparation des tissus ont été diminuées par la maladie. L'équilibration de l'occlusion joue un rôle important dans la thérapeutique de ces désordres. C'est pourquoi, on ne peut pas se baser uniquement sur les symptômes des maladies péridentaires pour recourir à la correction de l'occlusion. Ces cas ne sont pas causés par les pressions de l'occlusion et ils ne peuvent pas être traités seulement par l'équilibration de l'occlusion.

De même, on ne peut pas recommander la correction des désordres mineurs de l'occlusion pour la prévention des maladies péridentaires. Aussi, en périodontie, l'équilibration de l'occlusion est inutile s'il n'y a pas de signes pathologiques découlant de ces désordres.

In recent years experimental evidence has been accumulating which should have changed a widely held concept of minor occlusal disharmony as a primary cause of inflammatory periodontal disease. Unquestionably, excessive occlusal force can produce injurious changes in the teeth and supporting tissues. The nature of these changes has been clearly demonstrated in animal experiments and in autopsy findings of human jaw specimens. The changes are non-inflammatory responses of the attachment apparatus to forces in excess of physiological tolerance.

In spite of this evidence, remarkably inclusive lists of such clinical conditions as gingivitis, clefts, festoons, periodontal pockets, gingival enlargements and recession, still preface much of the literature on occlusal adjustment. According to this school of thought, inflammatory signs of periodontal disease are claimed to be directly associated with occlusal disharmony usually in the form of minor irregularities of the bite, such as premature or interfering occlusal contacts.

But the general trend in periodontal literature is to recast the traditional role of trauma from occlusion. Instead of acting as a primary ætiological agent in periodontitis, trauma from occlusion is considered to be a contributing factor in the spread of inflammatory periodontal disease and to act as the cause of a specific non-inflammatory form of periodontal disease, termed periodontal traumatism. In relating occlusion and periodontal disease the emphasis now is on the biological status of the periodontium. An occlusal relationship is traumatic not simply because of a disharmonious arrangement of teeth but only if evidence of pathological change traceable to occlusal force does in fact exist.

At the same time, there is a growing body of literature under the general subject title of "gnathology," which has a basic tenet, the concept of the premature contact as the cause of a host of unrelated pathological conditions, including

*Associate professor, Division of Periodontics, Faculty of Dentistry, Dalhousie University, Halifax.

periodontitis. The treatment for these manifestations of occlusal disharmony is occlusal correction or occlusal rehabilitation. An unconfirmed presumption exists that good function and periodontal health are consequences of normal occlusion and that malocclusion will cause inflammatory periodontal disease.[1] What purports to be a new and vital approach to dental treatment, directed toward obtaining and maintaining periodontal health,[2] is largely based on a relationship between occlusion and inflammatory periodontal disease, which is no longer held valid by present periodontal concepts.

Publications giving the "gnathologic approach" have undoubtedly stimulated interest in occlusion. They do, however, tend to perpetuate the misconception that trauma from occlusion is the main cause of periodontal disease. This they achieve by disregarding experimental evidence which has altered our understanding of the role of mechanical forces in the ætiology of periodontal disease.

Divergent opinion on clinical changes due to trauma from occlusion

The clinical changes which have over the years been related to excessive occlusal forces practically constitute an outline of the more common forms of oral disease. In a review of the topic, Glickman[3] presents a modified summary of clinical changes attributed to occlusal trauma consisting of no less than 26 diverse items. His comment on these 'many and varied phenomena' is pertinent: "in many instances the identification of trauma as a causative factor is based upon isolated clinical impressions rather than substantiated evidence."[3] Sorrin,[4] in a periodontal text which advocates occlusal correction as a preventive measure, lists 18 diagnostic signs of traumatic occlusion, although he observes that, "basic scientific studies have not yet fully proved these gingival signs to be diagnostic." Shore[5] states that excessive force results in torque of the teeth which may lead to tearing or degeneration of the epithelial attachment. This, according to the author, will deepen the gingival crevice. Shore further states that trauma from occlusion causes gingivitis, clefts, crescents and other signs of inflammatory periodontal disease. Many other oral disorders are said to be directly related to trauma from occlusion. A reviewer of this work in the *Journal of Periodontology* comments: "Thus without proof or careful consideration he lays at the door of malocclusion a vast number of unrelated disorders."[6]

Silverman,[7] while not advocating adjustment of the natural dentition as a prophylactic panacea, does include among his diagnostic reasons for occlusal correction the presence of gingivitis, erosion, cervical sensitivity and oral pain of obscure origin. He suggests that as time goes on there may come to light some connection between premature contacts causing tension and various kinds of physical disorders.

One of the more interesting publications entitled *Modern Gnathological Concepts*[2] is presented by Lucia[2] as a "do-it-yourself guide" to assist the profession in learning about gnathology. Lucia states that obtaining and maintaining periodontal health is the most common indication for full-mouth rehabilitation. Having determined that periodontal disease is present, the next step is examination of functional factors the most important of which is the discrepancy known as the premature contact. So effective is treatment according to gnathologic principles claimed to be only rarely is periodontal surgery instituted before treatment of occlusion is attempted.

A very different conception of trauma from occlusion and its role in periodontal disease is found in the periodontal literature. The American Academy of Periodontology[8] has tentatively adopted a classification of periodontal disease based upon periodontal pathology and pathogenesis, in which occlusal traumatism is designated as a specific non-inflammatory form of periodontal disease. Occlusal

traumatism is treated not as a primary cause of periodontitis but as a separate entity characterized by specific signs and symptoms.

Goldman[9] observes that in the absence of detectable clinical damage to the periodontium it cannot be predicted that deviations from acceptable patterns of tooth form, position, integration or jaw position will ever produce pathological change. The absence of signs and symptoms characteristic of periodontal traumatism implies health even though occlusal disharmony exists. According to this view, occlusal forces under certain circumstances cause non-inflammatory, destructive changes in the cementum, bone and periodontal membrane, but do not directly affect the soft investing gingiva and the epithelial attachment. Occlusal neuroses, such as bruxism and clenching, are important causes of excessive stress to the periodontium. The acts of chewing and swallowing are not likely to be significant since sufficient force cannot be applied for a long enough time to produce the characteristic tissue effects.

Glickman[3] stresses the complicating role of trauma from occlusion. The emphasis is on a fundamental difference between the natural and the artificial dentition, which is the ability of the periodontium to withstand alterations in the occlusal stress by accommodation and repair. A reduced reparative capability is caused by inflammatory periodontal disease induced by local irritants. Occlusal forces which normally may be within physiological limits are then potentially destructive. Occlusal force has not initiated the inflammatory change but complicates the situation by acting as a spreading factor. It is imperative to restore the tissues' capacity for repair by treating the inflammatory lesion through the removal of local irritants. Correction of occlusion alone will not eliminate periodontitis.

Orban[10] defines traumatism as a morbid condition brought about by mechanical forces which exceed the limits of tolerance. The specific non-inflammatory tissue changes result from functional adaptation. Mechanical forces do not cause pocket formation, gingivitis, recession or proliferation of the epithelial attachment. Occlusal adjustment may be important in maintaining therapeutic results because of the biological interrelation between good function and good tissue structure—a biological interrelation as distinct from the "mechanical concept of a preconceived articulation." Orban's unequivocal conclusion is that occlusal correction or bite reconstruction is not done to prevent or cure inflammatory or dystrophic periodontal disease.

Current opinion on the role of trauma from occlusion is clearly divided. For one group, mechanical force is the cause of many oral disorders, including inflammatory periodontal disease, and correction of occlusal disharmony is the basic therapeutic procedure. For the other group, trauma from occlusion, while a complicating factor in periodontitis, is mainly identified with a specific non-inflammatory form of periodontal disease.

Experimental evidence regarding effect of trauma from occlusion on the periodontium

Two investigations, one by Box and one by Stones, seem to provide the most quoted experimental evidence in support of the claim that trauma from occlusion can cause gingivitis, periodontal pockets, festoons, clefts and other inflammatory reactions in the periodontal tissues. In a critical but convincing review of both investigations, Bhaskar and Orban[11] report that the experimental evidence presented by Box and Stones does not support their conclusions. Experimental evidence since that time has consistently shown that trauma from occlusion does not produce the inflammatory reactions observed by these early investigators. The tissues affected by traumatic occlusion are the cementum, the alveolar bone and the periodontal ligament; the tissue changes in different experiments have been similar. These changes are also identical to

tissue reactions observed in human autopsy material from individuals with traumatic occlusions.

Reactions of the Periodontium to Excessive Occlusal Stress Under Experimental Conditions.—Histological observations of tissue subjected to excessive stress have consistently revealed thrombosis of vessels, haemorrhage, necrosis of the collagen fibres in the periodontal membrane, undermining bone resorption, occasionally cementum resorption and regeneration. There seems to be little, if any, inflammatory reaction. The reactive area showing the above changes is separated from the epithelial attachment and gingival crevice by an inflammation free zone.[12] In spite of trauma, far in excess of that which is normally the subject of occlusal correction, the gingival and alveolor crest fibres remain stable and intact. The attachment of these fibres to the cementum is not affected although directional changes occur to accommodate changes in tooth position resulting from the excessive stress.[13] The periodontal membrane increases in width to a point where the fibres can cope with the functional demand without further necrosis from crushing.[14] Mobility is a clinical reflection of the adjustment of the ligament to increased functional demand. Repair is the dominant feature when the tooth has adjusted to the new position.[12]

Investigative Conclusions on the Reactions of the Gingival Tissues to Excessive Occlusal Stress.—In contrast to clinical reports, experimental investigation has consistently shown that excessive occlusal force did not initiate gingivitis, periodontal pockets, gingival recession, clefts or any of the numerous lesions of the investing gingival tissue. The epithelial attachment, the underlying gingival and transseptal fibres retain their position relative to the cemento-enamel junction. Occlusal forces are not capable of either detaching the epithelial cuff or of inducing proliferation of the epithelium down the root surface.[13,15] The zone of tissue between the alveolar crest and the sulcular base seems to provide a stable protective barrier between the investing gingival tissue and the deeper supporting structures of the periodontal ligament.[14,16] The concept of mechanical forces stripping the epithelial tissue from the tooth surface and thus creating periodontal pockets is not in any way supported by experimental evidence.

Investigative Conclusions on the Likely Role of Trauma from Occlusion in the Aetiology of Periodontal Disease.—Investigative reports question the assumption that trauma from occlusion can initiate inflammatory periodontal disease. They particularly stress that initiation of periodontal pockets by such trauma is not possible.[13,14] The effects of trauma are specific and justify a separate classification of occlusal traumatism as a non-inflammatory form of periodontal disease. Observers seem impressed by evidence of the ability of the periodontal tissues to regenerate and adapt to increased functional stress.[14] Also the force applied was much greater than any overload likely from the minor occlusal irregularities[12] (premature contacts) which are stressed by most advocates of occlusal correction. In short, the tooth-supporting structures seem well designed to absorb functional stress without sustaining permanent damage.[12]

Diagnostic signs of periodontal traumatism

If trauma from occlusion is considered as a type of periodontal disease manifested by specific signs and symptoms, then in the light of experimental evidence most of the clinical signs previously used to identify this condition will no longer serve. If signs of destructive change in the periodontium are absent, then even in the presence of occlusal disharmony, a conclusion that periodontal health, or at least adaptation, exists is unavoidable. The presence of major or minor discrep-

ancies in tooth articulation is not of itself indicative of periodontal traumatism.[17]

Under these circumstances, identification of the incipient and early stages of periodontal traumatism is extremely difficult. The subjective response may be slight discomfort on closure or slight percussion sensitivity; tooth mobility, unrelated to inflammation, is the major clinical finding. Radiographic evidence of a thickened periodontal membrane space and lack of clarity of the lamina dura would confirm the clinical observations. In the absence of clinical signs, such radiographic appearances would require careful analysis for they are not unique to trauma from occlusion and so may be suggestive but not diagnostic.

A widened periodontal membrane or a thickened lamina dura do not necessarily indicate destructive change but may represent a strengthening of these structures in response to increased functional demand.[3]

In advanced periodontal traumatism the diagnostic signs of mobility and migration are more readily recognized both clinically and radiographically. In the absence of periodontal pockets or other inflammatory cause, trauma from occlusion should be considered in the differential diagnosis.

Conclusion

It seems clear from the available experimental evidence that trauma from occlusion is capable of producing a distinct form of periodontal disease characterized by specific non-inflammatory tissue changes. There is as well the very likely possibility that trauma from occlusion may operate as an aggravating factor in the spread of inflammatory periodontal disease.[18] In cases of occlusal neurosis and where the normal support and reparative capacity of the tissue has been reduced by disease, the forces of occlusion may exceed the adaptive capacity of the periodontium. In these instances occlusal correction plays an important part in periodontal therapy; and, of course, there are other reasons for occlusal correction and mouth rehabilitation which are not directly related to periodontal problems. In view of this it seems unnecessary to continue the practice of using signs of inflammatory periodontal disease as indications for occlusal correction. These conditions are simply not caused by the forces of occlusion and they are not treated by occlusal correction alone. There is equally little justification for recommending routine correction of minor occlusal disharmony for the prevention of periodontal disease. To do this is to equate minor malocclusion with traumatic occlusion. There seems to be no evidence that lack of normal articulation will of itself cause periodontal disease or that correction of occlusal disharmony will prevent the disease. Routine occlusal adjustment in the absence of related pathosis is not considered a justifiable procedure in periodontics.[19]

The role of occlusion in the ætiology and treatment of periodontal disease should be assessed in terms of available experimental evidence as well as by clinical impression. The true nature of this relationship is not yet clear but to disregard the results of research is to delay better understanding of the problem.

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5981 University Avenue

Teaching parents dental health

E. J. Hyde, D.D.S., M.Sc.D., Vancouver, British Columbia*

Statistics demonstrating the decay rate of children's teeth present a gloomy picture. Dental caries is so prevalent that the significance of other oral diseases is often ignored and our estimation of dental health is frequently confined to the incidence of dental caries.

Dental caries, a "civilization" disease, is influenced by diet, eating habits, oral hygiene, and the fluoride content of the drinking water. It is largely preventable. Prevention depends on effective education of parents and children.

Ordinarily, the public seems relatively disinterested in learning how to prevent dental disease. Gebhard[1] observed that dental health education had the lowest priority in adult public acceptance compared with other health subjects. However, dental health was rated as being more acceptable to children. For this reason, and because dental disease is best prevented at an early age, our teaching of preventive practices must be directed primarily toward children. From a practical point of view, dental health education must encompass both the child and the parent.

Parent education can be assisted to a certain extent by giving a series of lectures, by advertising campaigns, and community projects. Some results may also be obtained by showing films and by distributing literature. But it has been demonstrated[2] that the superiority of the more elaborate forms of presenting dental information is doubtful. As Hollander[3] recently pointed out, the most effective and lasting health education is achieved by the conversational method. And sometimes it is best to let the parent do most of the talking. In this way we can discover his preconceived attitudes and ideas. This, in turn, permits us to determine the aspects of dental health to be stressed.

Common misconceptions

There are many widely-held misconceptions relating to children's dental health. A consideration of a few of these, which are often held by parents, will be

*From Dental Health Services, Metropolitan Health Committee, Vancouver.

helpful in the selection of material for dental health education.

Exfoliation and Eruption Sequence. — When a six-year-old child starts losing deciduous anterior teeth parents sometimes expect that the shedding of deciduous posterior teeth will soon follow, and that, therefore, these teeth are not worth saving.

Yet, many of the so-called "baby teeth" may have a normal life span of ten years. The deciduous molars, which erupt by age two, may not normally be shed until the child is 12 or 13 years of age. These teeth are essential for proper mastication. More important still, during this time they help the normal physiological development of the jaws. For these reasons children's teeth should be examined early in life and regularly thereafter. It is essential that the deciduous dentition be properly cared for and maintained until each tooth is physiologically exfoliated. The most expensive dental treatment is usually the result of neglect.

Diet.—A question often asked by parents relates to diet. It may take this form: "All my children eat the same food, so why does only one child have so much tooth decay?"

The individual children of a family do not necessarily have the same eating habits. While one child may prefer meats and vegetables or fruit, another child in the same family may crave and get more than his share of starchy and sweet foods. Although it is possible for one child of a family to be inherently more susceptible to dental caries than the others, the child with most tooth decay usually has a more cariogenic diet. There are many unanswered questions about the aetiology of dental caries. Nevertheless, there is good evidence that in most cases excessive use of the more readily fermentable carbohydrates and individual eating habits are important contributing factors.

Toothbrushing. — Many parents believe that the young child can maintain good oral hygiene by himself if he is made to brush his teeth regularly. This is not necessarily so. Unless the child is first carefully shown how to brush his teeth, and then motivated and helped by his parent, he is unlikely to clean his teeth adequately. Kimmelman and Tassman[4] report that children under age seven were usually much briefer and more haphazard and erratic in their tooth brushing habits than children above the age of seven. Massler et al[5] consider that children are more likely to maintain good oral hygiene when taught by a dentist or a qualified instructor. They estimate that the average child requires four practice visits before he learns to manipulate a toothbrush correctly. Unless habits of oral hygiene are learned in childhood they are difficult to acquire later.

Dentifrice.—Some persons believe that a certain brand of toothpaste will best prevent decay. Others are confused by the conflicting scientific claims of dentifrice advertisements.

Regardless of claims for superiority of any particular dentifrice, the major points to stress in dental health teaching are the method and the time of brushing. Many studies during the past 15 years have shown promise for a variety of dentifrices. One formulation of a stannous fluoride dentifrice has even been recognized as "an effective decay-preventive agent" by the Council on Dental Therapeutics of the American Dental Association.[6] Nevertheless, not all authorities agree that a stannous fluoride containing dentifrice is superior to others. For example, insignificant benefits in young adults were obtained by Kyes et al[7] when they investigated the anticariogenic action of a dentifrice containing stannous fluoride. Furthermore, a study by Finn and Jamison[8] suggests that it may be possible for other dentifrices to produce just as much or more anticariogenic action on the teeth. It seems that no one dentifrice works best for everybody.

Fluoridation. — Many people are afraid

that fluoridation may eventually prove to be harmful.

The fluoride ion is no newcomer to the human diet. Everyone ingests a certain amount of it daily in the food he eats. There is no evidence to show that the use of fluoridated drinking water containing approximately 1 ppm of fluoride has anything but beneficial effects on any individual.[9,10] Fluoridation has become the most emotionally opposed public health issue of today. Some allegations of the supposed dangers of fluoridation resemble the attacks made on a number of important public health measures in the past. However, as most people seem prepared to accept the opinions of responsible health bodies on other health measures, it is likely that public health education by medical, dental, nursing and other groups will eventually convince the public of the real and safe benefits of fluoridation.[11]

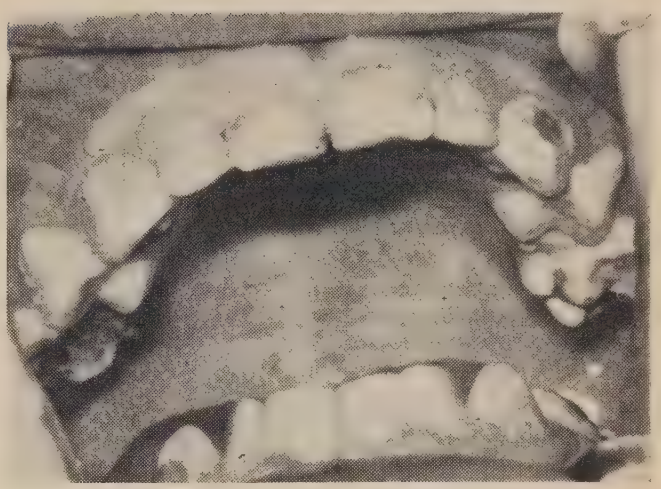

FIGURE 1 Rampant caries in a five-year-old child. A soft starchy diet and neglected oral hygiene are evidenced by the heavy plaque material surrounding the necks of the teeth. Note the perlèche at the angles of the mouth. This condition is often associated with poor nutrition.

Presenting dental health information to parents

When parents become well-informed in matters of health they are able to protect their children from a large number of diseases. Many of the present dental ills can be avoided by making parents aware of the importance of prevention and early treatment and by teaching good dental health habits. The dentist with a child patient in the chair has the best opportunity to teach dental health to both the child and his parent.

Each time food debris or dental plaque is evident in the child's mouth it should be brought to the attention of the parent. Figure 1 shows a case where a very cariogenic diet and extremely neglected oral hygiene are associated with rampant caries. Teeth heavily laden with plaque material and tooth cusps showing a lack of normal wear can indicate a soft, starchy diet. Pre-carious demineralized enamel can often be exposed by removing dental plaque material from a tooth, particularly from the buccal surface, as seen in Figure 2. This is an example where the dentist can explain the relationship of tooth decay and plaque formation to the parent.[12]

FIGURE 2 A child's upper left six-year molar as seen through a mouth mirror. A scaler has been used to remove some of the buccal plaque material, showing demineralized enamel underneath. Jinks takes advantage of this occurrence to explain to parents the relationship between poor oral hygiene and dental caries.

A previous study[13] indicated that parents usually cease to help children with their toothbrushing when they commence school. It should be emphasized to the parent that the child especially needs assistance and instruction in oral hygiene

FIGURE 3 The approach parents should use while brushing the child's teeth, as recommended by Starkey.

when his six-year molars erupt (often at age 5½). Figure 3 shows the correct position to be taken by the parent while brushing the child's teeth, as suggested by Starkey.[14] With the child in front leaning his head back comfortably, the parent's two hands are free to retract the lips and brush all surfaces of the teeth. A toothbrush with "soft" bristles can be recommended for the very young child.[15]

Communal fluoridation is the most logical approach to the prevention of dental caries. Parents should be made aware that when the communal water contains 1 ppm fluoride, native resident children are likely to be more than 50 per cent less caries-susceptible than comparable children living where there is a lack of fluoride.[16,17] McDonald[15] suggests that the "posteruptive effect" of fluoridation should also be stressed. Accordingly, individuals who have resided in a non-fluoride area prior to the eruption of their teeth may subsequently derive some posteruptive benefit by later residence in a fluoride area. The posteruptive benefits of fluoridation have been shown to result in 17 per cent less interproximal caries and 31 per cent fewer cavities in the buccal and labial surfaces of the teeth.[18]

Summary

The dentist with a child patient is in an ideal position to teach dental health to parents. Many parents have preconceived ideas about dental health that are incorrect. Common misconceptions concerning exfoliation and eruption of teeth, diet, oral hygiene, and fluoridation may be corrected through personal conversation between dentist and parent.

Evidence of neglect of oral hygiene is drawn to the attention of the parent while the child is still seated in the dental chair. Parents are shown how to brush the teeth of very young children. It seems inadvisable to recommend a particular kind of dentifrice; nevertheless, if parents show preference for a dentifrice that they find satisfactory they should continue to use it.

A primary aim of dental health education is persuading people to accept fluoridation.

Résumé

Le dentiste qui traite un enfant est dans une situation idéale pour enseigner l'hygiène dentaire à ses parents. Un grand nombre de parents ont des idées préconçues souvent fausses au sujet de l'hygiène dentaire. Des idées erronnées sur la chute et l'éruption des dents, sur l'alimentation, sur l'hygiène buccale et sur la fluoration peuvent être corrigées par ce contact du dentiste avec les parents.

Le dentiste peut attirer l'attention des parents sur les résultats d'une hygiène dentaire pauvre, pendant que l'enfant est dans le fauteuil de son cabinet. Il peut montrer aux parents comment brosser les dents des tout jeunes enfants. Il n'est pas

bon de conseiller une marque de dentifrice particulière: si les parents utilisent un dentifrice dont ils sont satisfaits, il faut les laisser continuer à s'en servir.

Un des principaux objectifs de l'éducation en hygiène dentaire est de convaincre les gens des avantages de la fluoration.

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456 West Broadway

case reports

Mandibular bilateral dentigerous cysts

H. E. Simmons, D.M.D., Vancouver, British Columbia*

Dentigerous cysts have been defined as closed epithelium-lined sacs formed about the crowns of unerupted teeth. They are said to originate through a breakdown of the stellate reticulum of the enamel organ after the crown of the tooth has formed. Archer,[1] however, suggests that they arise possibly as the result of degenerative changes in the reduced enamel epithelium. This would place their time of development after, rather than before, the deposition of enamel. Cysts of this kind vary greatly in size, ranging from those only slightly larger than the tooth

*Chief of Service, Dentistry, D.V.A. Shaughnessy Hospital, Vancouver.

FIGURE 1 Anteroposterior radiograph.

FIGURE 2 Left lateral radiograph.

crown itself to those that have become so large that they include the major portion of the maxilla or mandible.

The case reported here is rather unusual because both a large and a small type of dentigerous cyst were present in the same mandible.

Case report

History and Examination. — The patient, a 63-year-old white male suffering from advanced dental caries, presented for extraction of his remaining lower teeth. He had previously lost his upper teeth for the same reason. Clinical examination revealed a massive osseous bulge in both retromolar regions of the mandible, the one on the left being more prominent than that on the right. The radiographic appearance in each case was that of a cystic cavity containing two perfectly formed molar teeth with occlusal surfaces opposed to each other in a horizontally impacted position (Figures 1-3). On the left side of the mandible the bone was eggshell-thin and discontinuous, presumably due to pressure from the fluid content of the cystic cavity. Subsequent investigation revealed evidence of bone resorption by osteoclastic action and deposition of new bone by osteoblastic action a little further away. This accounted for the gradual thinning out and bulging of the bone, particularly on the left side. Only fibrous, stratified squamous epithelium covered by a connective tissue capsule was present in areas which had been denuded of bone.

All remaining carious teeth were first extracted under local anaesthesia and a reasonable healing period allowed. The patient was then admitted to hospital for the removal of both cysts. The extent of bone loss, coupled with the weakened condition of the mandible and difficulty in removing the impacted teeth, made an extra-oral approach desirable. It was anticipated that a subsequent bone graft might accelerate osteogenetic action to fill in the cystic cavity following the operation.

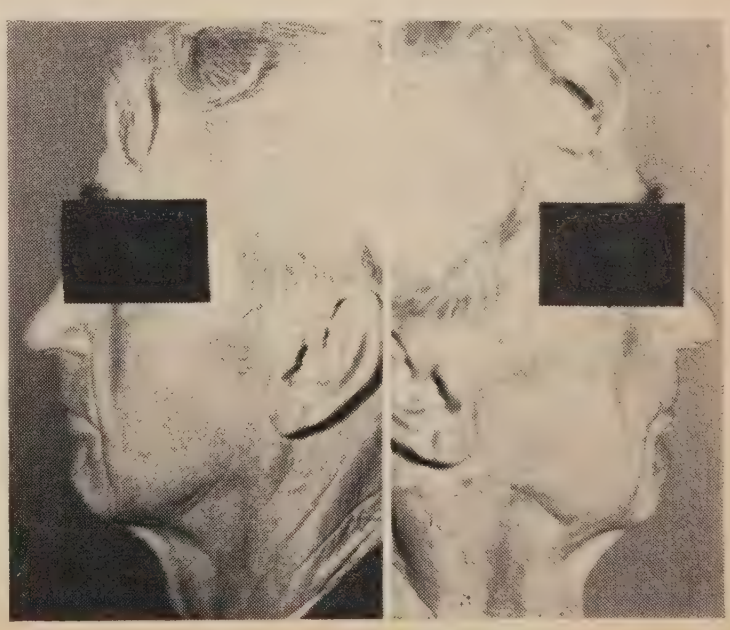
Surgical Procedure. — The operation for removal of the dentigerous cysts and unerupted teeth and the insertion of a bone graft was performed by a maxillo-facial team comprising a plastic surgeon and an oral surgeon. Naso-endotracheal anaesthesia was induced with sodium thiopental and maintained with nitrous oxide, oxygen and trichloroethylene. The skin was prepared by scrubbing with soap and water followed by Cetavlon detergent and benzalkonium chloride. The patient was draped with sterile towels leaving the lower two-thirds of one side of the face exposed. A linear incision was then made with a Bard-Parker No. 15 blade in the submucosal region below the angle and extending forward just below the inferior border of the body of the mandible. The skin, subcutaneous tissue and platysma muscle were divided, permitting lateral deflection of the marginal branch of the facial nerve and associated structures. This exposed the attachment of the masseter muscle and the body of the mandible with its bulging cystic wall covered in part by thin bone — too thin to be easily demonstrated in a radiograph. The thin layer of bone was then carefully removed by means of a rongeur and hæmostat forceps, exposing the cystic membrane on the entire buccal surface. When the sac was punctured there escaped a creamy fluid material not unlike curdled milk but slightly yellow in colour. This was removed with suction. The entire cystic membrane was in turn enucleated by dissecting it from around the necks of the two molar teeth and raising it by means of a periosteal elevator from the lingual cortical plate. The cystic sac was subjected to microscopic examination. This examination confirmed the diagnosis of a well-developed cyst.

The roots of the molar teeth were completely ankylosed into the surrounding bone, probably due to the slow gradual pressure exerted by the expanding fluid content of the cyst. Since the frailty of the remaining bone did not permit any application of leverage or pressure, each root was carefully drilled out

FIGURE 3 Right lateral radiograph.

with a No. 702 fissure bur in a dental drill. This was relatively simple because the extra-oral approach provided good visibility and a clear field to work in. Toilet of the cavity revealed that the lingual periosteum and all the crest periosteum were intact. The mandibular canal and its enclosed structures were plainly visible but left undisturbed. Bone chips taken from the crest of the ilium

FIGURE 4 Postoperative profile views.



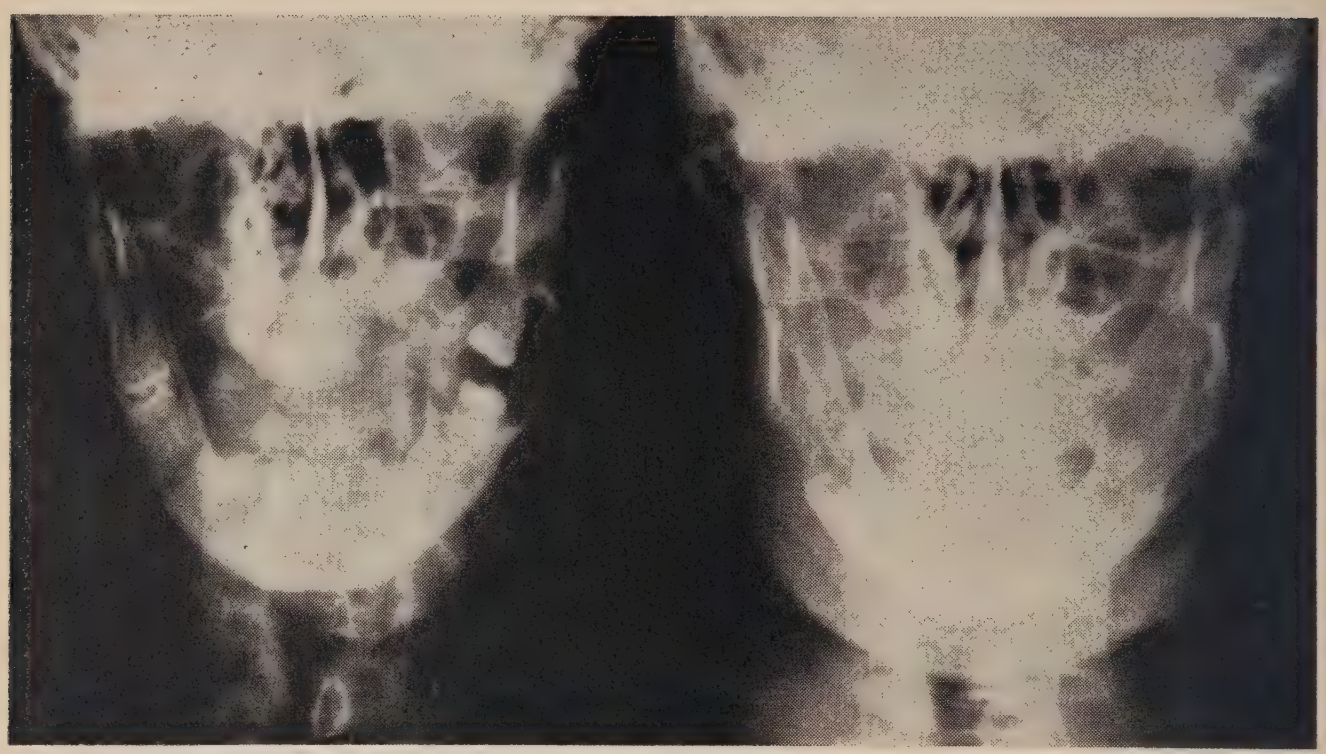


FIGURE 5 Postoperative radiography.

were then packed loosely into the empty space and the tissues brought together again by deep and surface sutures without the introduction of any drain.

The drapes were reversed and the operation repeated on the opposite side.

Postoperative Course. — The patient left the operating room in good condition. Healing was uneventful and the patient was discharged from the hospital within a week. Dentures were provided in due course and the patient's progress has been quite normal ever since (Figure 4). Figure 5 shows postoperative radiographs taken six months later. Osteogenesis is plainly visible at the two sites of surgery.

Discussion

An alternative approach could have been through the oral cavity. But this would have compounded the wound, greatly increased the danger of fracturing the mandible because of poor visibility, and eliminated the possibility of bone grafting. It has been our experience that where bone loss is extensive, healing can be accelerated and the whole structure strengthened by the immediate introduction of bone chips.

Cysts of this kind are recorded in patients of all ages, from the very youngest to the oldest. Age does not seem to be a specific factor but some authors use age as an argument in favour of early extraction of impacted, unerupted teeth. This emphasizes the importance of periodic radiographic examination of the teeth and surrounding tissues.

Summary

A case of bilateral dentigerous cystectomy with removal of unerupted wisdom teeth and insertion of cancellous bone chips in the cystic cavities is described. Periodic radiographic examination of the teeth and adjacent tissues and early removal of impacted unerupted teeth are advocated.

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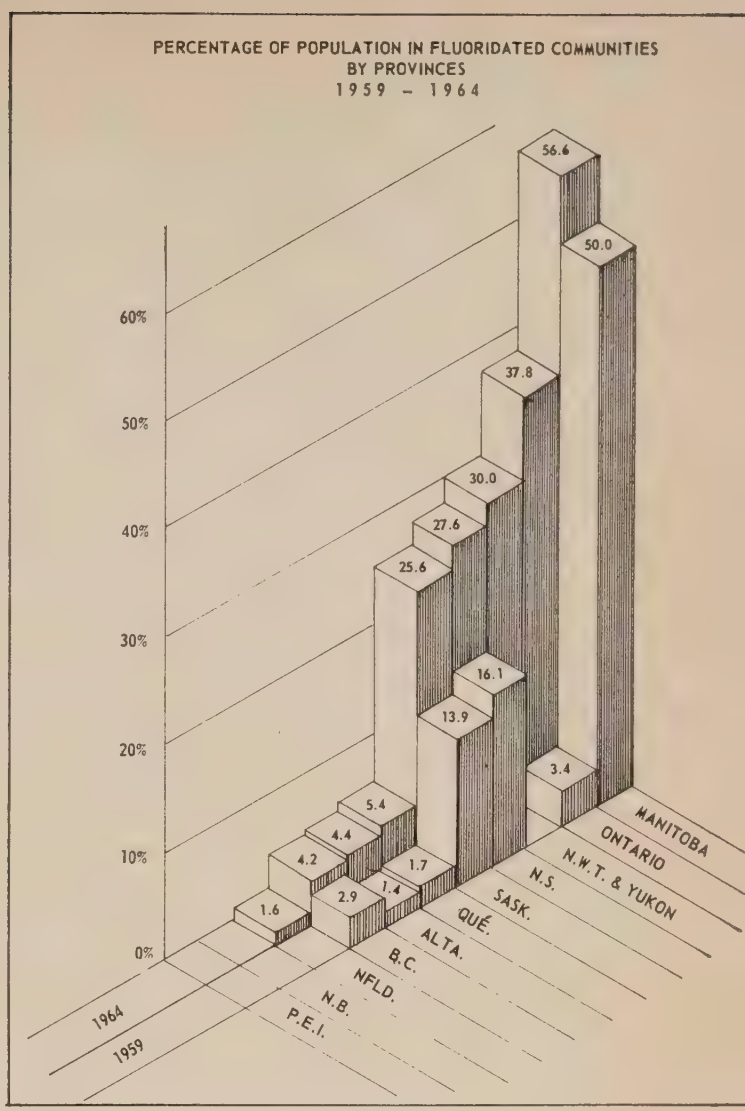

FIGURE 1 Percentage of population in fluoridated communities • Pourcentage de la population qui habite des villes où l'eau est fluorée.

The list of communities with controlled fluoridation grew by 35 last year while the population drinking fluoridated water almost doubled. The 92 per cent increase in Canada's population receiving fluoridated water was largely the result of Toronto's winning the distinction of being the largest city ever to adopt fluoridation by plebiscite. Its population boosts by three-and-one-half times the number of Ontario people benefitting from this public health measure. Six other Ontario communities adopted fluoridation during 1963 while Saskatchewan added 11 communities to its list.

With the fluoridation of the water supplies in Gander and Harmon, Newfoundland joins the ranks of provinces with fluoridating municipalities. New Brunswick and Prince Edward Island are now the only provinces with no controlled fluoridation (Tables 1 and 2).

La liste des municipalités qui fluorurent leur eau s'est accrue de 35 noms, tandis que la population qui boit de l'eau fluorée a presque doublé. L'augmentation de 92 pour cent de la population du Canada qui consomme de l'eau fluorée est due au fait que la ville de Toronto a eu l'honneur d'être la municipalité la plus considérable à adopter par referendum cette mesure. En raison de sa population, le nombre des personnes d'Ontario qui bénéficient de la fluoration a augmenté de trois fois et demi. En 1963, six autres villes d'Ontario ont adopté la fluoration et 11 municipalités de Saskatchewan ont fait de même.

Terre-Neuve, grâce aux villes de Gander et Harmon, a rejoint les rangs des provinces qui utilisent la fluoration. Le Nouveau-Brunswick et l'Ile-du-Prince-Edouard sont maintenant les seules provinces où des aqueducs ne fluorurent pas leur eau (Tableaux 1 et 2).

TABLE 1 Municipalities with controlled fluoridation, January, 1964 • Municipalités qui fluorurent leur eau, au mois de janvier, 1964.

Province	Community Ville	Date started Début	Population	Total provincial population affected Population de la province touchée par cette mesure
Canada				3,868,300
Newfoundland Terre-Neuve				7,500
	Gander	1963	6,000	
	Harmon	1963	1,500	
Prince Edward Island Ile-du-Prince-Edouard				
Nova Scotia Nouvelle-Ecosse				208,700
	Antigonish	1963	4,600	
	Dartmouth	1956	67,500	
	Halifax	1956	123,300	
	Kentville	1956	6,500	
	Windsor	1963	3,800	
	Wolfville	1959	3,000	
New Brunswick Nouveau-Brunswick				
Québec				295,500
	Acton Vale	1960	5,000	
	Ayersville		3,000	
	Beaconsfield	1955	10,000	
	Berthierville	1960	5,300	
	Candiac	1961	1,800	
	Chomedey	1958	30,400	
	Delson	1961	2,200	
	Dorval	1957	18,500	
	Duvernay	1958	10,900	
	Greenfield Park	1962	3,500	
	Joliette	1957	18,400	
	Joliette Sud		1,600	
	Lachute	1962	7,600	
	La Providence	1961	4,300	
	Laval-des-Rapides	1958	19,200	
	LeMoyne	1962	3,500	
	Lorraine	1963	200	
	Notre-Dame-des-Prairies		1,700	
	Pointe Claire	1955	20,000	
	Pont Viau	1958	16,100	
	Préville	1962	1,000	
	Rock Island	1958	1,700	
	Rosemère	1963	6,200	
	St-Constant		3,900	
	St-Jérusalem-d'Argenteuil	1962	400	
	St-Joseph	1961	3,800	
	St-Lambert	1962	17,000	
	St-Vincent-de-Paul	1958	11,200	
	Ste-Anne-de-Bellevue	1960	4,000	
	Ste-Catherine-d'Alexandrie	1961	1,800	
	Ste-Rosalie	1961	1,300	
	Senneville	1960	1,500	
	Stanstead Plain	1958	1,400	
	Trois-Rivières	1962	57,100	

TABLE 1 (cont'd-suite)

Province	Community Ville	Date started Début	Population	Total provincial population affected Population de la province touchée par cette mesure
Ontario				2,435,800
	Atikokan	1963	6,000	
	Brantford	1945	62,900	
	Brockville	1956	19,500	
	Burlington	1961	46,400	
	Cornwall	1962	44,500	
	Deep River	1952	5,400	
	Dryden	1963	6,300	
	Fort Erie	1952	9,000	
	Kirkland Lake	1962	15,400	
	North Bay	1962	38,000	
	Oakville	1963	36,000	
	Oshawa	1953	63,200	
	Parry Sound	1962	6,300	
	Perth	1962	6,000	
	Port Credit	1961	6,800	
	Prescott	1963	5,200	
	Renfrew	1962	8,700	
	Schumacher	1955	4,500	
	Sioux Lookout	1963	2,700	
	South Porcupine	1955	4,200	
	Streetsville	1962	5,200	
	Sudbury	1952	80,300	
	Swastika	1962	1,000	
	Thorold	1952	9,800	
	Toronto (Metro.)	1963	1,650,000	
	Toronto Twp.	1961	62,000	
	Wallaceburg	1962	10,000	
	Welland	1963	40,000	
	Whitby	1962	15,000	
	Windsor	1962	165,500	
Manitoba				537,500
	Boissevain	1957	1,300	
	Brandon	1955	28,200	
	Dauphin	1958	7,400	
	Gimli	1963	1,800	
	Killarney	1960	1,700	
	Minnedosa	1960	2,200	
	Neepawa	1963	3,200	
	Portage la Prairie	1958	12,400	
	Souris	1963	1,800	
	Steinbach	1960	3,700	
	Winnipeg Metro	1956	473,800	
Saskatchewan				238,600
	Assiniboia	1953	2,500	
	Birch Hills	1962	500	
	Blaine Lake	1961	600	
	Cabri	1961	700	
	Canora	1961	2,100	
	Carrot River	1961	900	
	Chaplin	1961	500	
	Craik	1963	600	
	Davidson	1961	900	

TABLE 1 (cont'd-suite)

Province	Community Ville	Date started Début	Population	Total provincial population affected Population de la province touchée par cette mesure
Saskatchewan (cont'd-suite)				
	Estevan	1961	7,700	
	Eston	1957	1,700	
	Foam Lake	1962	900	
	Humboldt	1963	3,200	
	Kamsack	1959	3,000	
	Kenaston	1963	400	
	Kerrobert	1962	1,200	
	Kindersley	1959	3,000	
	Langenburg	1962	800	
	Langham	1962	400	
	Lanigan	1963	500	
	Lashburn	1963	500	
	Leader	1961	1,200	
	Leask	1962	500	
	Luseland	1961	700	
	Melfort	1962	4,000	
	Melville	1960	5,200	
	Montmartre	1960	500	
	Moose Jaw	1952	33,200	
	Moosomin	1963	1,800	
	Naicam	1961	700	
	Plenty	1962	200	
	Preeceville	1961	900	
	Prince Albert	1960	24,200	
	Quill Lake	1963	500	
	Rosthern	1960	1,300	
	Rouleau	1962	400	
	Saskatoon	1955	95,500	
	Spiritwood	1963	500	
	St. Louis	1963	300	
	Star City	1961	600	
	Sturgis	1962	600	
	Swift Current	1954	12,200	
	Tisdale	1960	2,400	
	Uranium City	1963	3,200	
	Wadena	1961	1,300	
	Wakaw	1962	1,000	
	Watson	1961	900	
	Wawota	1963	500	
	Weyburn	1955	9,100	
	Whitewood	1962	900	
	Wynyard	1956	1,700	
Alberta				62,400
	Athabasca	1962	1,500	
	Beaumont	1962	300	
	Bonnyville	1962	2,100	
	Coaldale	1963	2,600	
	Devon	1959	1,400	
	Fairview	1958	1,700	
	Fort Saskatchewan	1962	3,600	
	Grande Prairie	1959	9,700	
	Innisfail	1960	2,400	
	Leduc	1962	2,800	

TABLE 1 (cont'd-suite)

Province	Community Ville	Date started Début	Population	Total provincial population affected Population de la province touchée par cette mesure
Alberta (Cont'd-suite)				
	Peace River	1963	3,200	
	Ralston	1963	1,100	
	Red Deer	1958	23,100	
	St. Albert	1962	6,900	
British Columbia Colombie britannique				70,600
	Burns Lake	1960	1,000	
	Campbell River	1960	3,700	
	Fort St. John	1963	3,600	
	Kamloops	1963	10,100	
	Kelowna	1956	13,200	
	Kitimat	1958	8,200	
	Lake Cowichan	1960	2,100	
	Mesachie Lake	1958	300	
	Prince George	1955	13,900	
	Prince Rupert	1957	12,000	
	Smithers	1955	2,500	
Northwest Territories Territoires du nord-ouest				6,600
	Fort McPherson	1962	500	
	Fort Smith	1961	1,700	
	Inuvik	1962	1,200	
	Yellowknife	1959	3,200	
Yukon				5,100
	Whitehorse	1961	5,100	

In the nation as a whole, 20.5 per cent of the population or one of every five Canadians drinks fluoridated water. This is heartening when compared with the meagre 2.1 per cent covered in 1956, but Canada still falls short of the figure for the United States where, according to the Health League of Canada, one in four of the total population receives fluoridated water.

The percentage of the population covered varies among the provinces from zero in New Brunswick and Prince Edward Island to 57 per cent in Manitoba. Over the past five years, Ontario has made the greatest progress. It is particularly unfortunate that Newfoundland and New Brunswick which have the poorest dentist:population ratios of any province

Dans l'ensemble du Canada, 20.5 pour cent de la population (ou un de chacun des cinq citoyens) boit de l'eau fluorée. Cette constatation est encourageante, puisqu'en 1956 cette proportion n'était que de 2.1 pour cent. Le Canada, toutefois, tire de l'arrière par rapport aux Etats-Unis où, selon la Ligue de santé du Canada, une personne sur quatre consomme de l'eau fluorée.

Le pourcentage de la population qui est ainsi protégée varie selon les provinces, de zéro au Nouveau-Brunswick et à l'Ile-du-Prince-Edouard à 57 au Manitoba. Au cours des cinq dernières années, c'est l'Ontario qui a fait les progrès les plus remarquables. Il est regrettable que Terre-Neuve et Nouveau-Brunswick qui, de toutes les provinces ont la proportion la plus faible de dentistes par rapport à

TABLE 2 Increase in population and municipalities with fluoridation since 1963 • Augmentation de la population et des municipalités qui ont adopté la fluoration depuis 1963.

Province	Percentage increase in population Pourcentage de l'augmentation de la population	Increase in number of municipalities Augmentation en nombre des municipalités
Newfoundland Terre-Neuve	—	2
Prince Edward Island Ile-du-Prince-Edouard	—	—
Nova Scotia Nouvelle-Ecosse	21.7	2
New Brunswick Nouveau-Brunswick	—	—
Québec	1.8	4
Ontario	257.6	7
Manitoba	1.2	3
Saskatchewan	5.0	11
Alberta	24.8	4
British Columbia Colombie britannique	23.4	2
Northwest Territories Territoires du nord-ouest	—	—
Yukon	—	—
Canada	91.5	35

TABLE 3 Per cent of total population in municipalities with controlled fluoridation, by provinces, 1964 • Pourcentage de toute la population des municipalités qui fluorurent leur eau, par province, en 1964.

Province	Per cent Pourcentage
Newfoundland Terre-Neuve	1.6
Prince Edward Island Ile-du-Prince-Edouard	0.0
Nova Scotia Nouvelle-Ecosse	27.6
New Brunswick Nouveau-Brunswick	0.0
Québec	5.4
Ontario	37.8
Manitoba	56.6
Saskatchewan	25.6
Alberta	4.4
British Columbia Colombie britannique	4.2
Northwest Territories Territoires du nord-ouest	27.5
Yukon	34.0
Canada	20.5

Table 4 Per cent of total population in municipalities with controlled fluoridation, 1956-1964. • Pourcentage de toute la population des municipalités qui fluorurent leur eau, 1956-1964.

Year Année	Per cent Pourcentage
1956	2.1
1957	5.8
1958	5.9
1959	6.1
1960	6.0
1961	7.4
1962	8.4
1963	10.9
1964	20.5

TABLE 5 Plebiscites held during 1963 • Referendums tenus en 1963.

Province	Community / Ville	Votes cast / Nombre de votes		Decision / Résultat
		For - Pour	Against - Contre	
Newfoundland / Terre-Neuve				
Prince Edward Island / Ile-du-Prince-Edouard				
Nova Scotia / Nouvelle-Ecosse				
New Brunswick / Nouveau-Brunswick				
Québec				
Ontario	Blind River	783	262	yes - oui
	Goderich	828	1,130	no - non
	Nipigon	36	203	no - non
	Port Arthur	3,408	5,782	no - non
	Thornbury	160	304	no - non
	Whitby	1,455	1,406	yes - oui
Manitoba				
Saskatchewan	Midale			no - non
	Yorkton	1,008	1,827	no - non
Alberta	Barrhead	641	73	yes - oui
	Brooks	171	301	no - non
	Devon	223	23	yes - oui
	Fort St. John			yes - oui
	Hanna	428	302	no - non
	Kinuso			yes - oui
	Lac La Biche	220	154	no - non
	Mayerthorpe	76	13	yes - oui
	Redwater	184	68	yes - oui
	Taber	400	223	no - non
British Columbia / Colombie britannique	Quesnel	289	392	no - non
	Squamish	160	70	yes - oui
	Williams Lake	260	35	yes - oui
Northwest Territories / Territoires du nord-ouest				
Yukon				

have between them only 7,500 people receiving fluoridated water (Tables 3 and 4).

Twenty-one plebiscites on fluoridation were held during 1963 in British Columbia, Alberta, Saskatchewan and Ontario. Of these, ten voted "yes" for fluoridation. In Alberta, where a two-thirds majority is required, four plebiscites failed; but only one of these had more people vote against than for fluoridation (Table 5).

la population, n'ont toutes deux ensemble que 7,500 personnes qui consomment de l'eau fluorée (Tableaux 3 et 4).

Durant 1963, vingt-et-un plébiscites ont eu lieu en Colombie britannique, Alberta, Saskatchewan et Ontario. De ce nombre, dix ont voté "oui." En Alberta, où une majorité de deux tiers est nécessaire, quatre referendums ont été négatifs; mais une seule fois, au cours de ces referendums, la majorité s'est déclarée contre la fluoration (Tableau 5).

editorials

Tragedy in Belgium

It is common knowledge that Belgian physicians and dentists have reacted most strongly to the Belgian government's new health care legislation. But the issues behind this conflict are less clearly understood. A recent editorial in the *Canadian Medical Association Journal* sheds further light on these tragic happenings.[1]

It seems that Belgium's new National Sickness and Invalidity Insurance Scheme, passed late last year, was a by-product of political bargaining between Social Democrats and Christian Democrats. Apparently the Socialists agreed to help Premier Théo Lefèvre's coalition government resolve recent differences between French- and Flemish-speaking sections of the country provided the government would extend socialization of health services. Thus resulted the law that caused 12,000 physicians, dentists and opticians to withdraw their services on April 1.

Under a previous scheme, wage earners, some salaried workers, and their dependants (56 per cent of the population) were insured for health benefits. That scheme was administered by provident societies. There was a fixed fee tariff. Patients could recover about 75 per cent of the tariff fee. Practitioners could charge more than the tariff and the patient had to pay the extra amount plus his proportion of the tariff fee.

The alleged purpose of the new law is to make health insurance financially self-supporting. Up to now it has been subsidized from general revenue.

The new act covers those insured under the old scheme. It also includes pensioners, widows, orphans, and disabled persons and their dependants. There is provision to extend compulsory insurance to virtually the entire population. Under a new fee schedule between 75 and 100 per cent of fees of participating practitioners would be refunded to patients. Whereas professional fees were previously about double the new schedule of fees, practitioners' charges may not now exceed the new tariff. Moreover, patients who choose a non-participating practitioner can only recover one-half of the indicated fee.

Under the new law each patient must also carry a "health record" of his illnesses and treatment. Public officials may have access to this record.

The scheme is to be administered by a public corporation with a co-ordinating council composed of equal numbers of representatives of employers, workers, insurance institutions, and of medical, dental, pharmaceutical and hospital services.

The Belgian health professions apparently do not object to the general principles embodied in the new law. But they do resent specific aspects, such as lack of consultation with the professions prior to enactment of the law, infringements of professional secrecy, removal of free choice of medication, lack of a deterrent fee to prevent over-utilization by those patients who are to be reimbursed 100 per cent, restriction of the patient's choice of practitioner, discrimination against non-participating practitioners, and the arbitrary imposition of a rigid fee schedule.

Because they have minority representation on administrative boards, dentists,

additionally, fear that administrative control of dental services may become vested with physicians.[2]

There are very strong feelings in the professions over the manner in which this legislation was introduced and enacted. In particular, they resent being used as pawns for a political accommodation and they resent being made the victims of a fiscal stratagem designed to make health insurance self-supporting. Unfortunately, the professions have gained little public sympathy for their cause. Trade unions, embracing most of the nation's four and a half million work force (total Belgian population: nine million) are solidly ranged against them. The government, faced with political suicide if it gave way to the professions, responded early in the crisis with civil and military conscription of physicians to maintain an emergency medical service. After prolonged negotiation with the government, the affected parties on April 18 agreed to resume normal services.

Regardless of the outcome, the events in Belgium represent a major social tragedy. The cost of discrimination against the health professions, a minority within the larger population, must ultimately be measured in terms of disruption of services to the public and disaffection and demoralization of those who render these services.

For us there may be a valuable lesson here. These happenings illustrate how rapidly health services may become embroiled in political manoeuvres that have other and entirely separate objectives. Surely they underscore the importance of being ready for any eventuality, of being prepared to administer dental services before and not after political or public demand becomes overt!

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Phosphate-fluoride solution for topical application

Basic investigations by workers in Boston[1] on the mechanisms of fluoride uptake in tooth enamel led to the discovery that maximum fluoride uptake occurred from solutions of sodium fluoride in acid sodium phosphate. Enamel took up more fluoride with increase in fluoride concentration and decrease in pH of the solution. Treatment of enamel with acid phosphate decreased its solubility in other acids, and when fluoride was present in the acid phosphate solution enamel solubility was further decreased. Acid phosphate-fluoride solutions were stable over long periods of time when stored in plastic containers. They produced no discoloration of enamel, they had no objectionable taste, and no untoward effects were observed when they were applied topically to the teeth of children. Acid phosphate-fluoride solutions offered good potential as a topically applied caries preventing agent.

Two studies have now been reported on the effects on caries rate in children of an acid fluoride-phosphate solution applied topically. In one study[2] a group of 77 dentally fit children, four to ten years of age, were treated four times within a period of two weeks with two fluoride solutions. The left side of the dentition of each child was treated with neutral 2 per cent sodium fluoride solution, and the right side with 2 per cent sodium fluoride in an acid phosphate solution. Observations of subsequent caries experience extended over a period of from three to 15 months. A total of 137 new carious surfaces were found during the observation period, of which 67 per cent occurred on the side of the mouth treated with neutral sodium fluoride, and 33 per cent on the side treated with phosphate-fluoride solution. The number of new cavities was decreased about 50 per cent by using a solution of fluoride in acid phosphate. No

discoloration of teeth occurred in any of the children, and no harm was caused to soft tissues or to teeth. The solutions were well accepted by the children.

In another study[3] single topical application of an acid phosphate-fluoride solution was made once a year for two years. 115 children who received the phosphate-fluoride solution topically had approximately 70 per cent fewer carious surfaces than 113 comparable children who served as controls. Results were similar at the end of both the first and second years of the study, indicating no decrease in therapeutic effect of the solution. The solution underwent no detectable chemical change over a period of several months in storage. Tooth discoloration or gingival irritation did not occur, and again treatment was well accepted by the children.

The results of the two clinical trials are not directly comparable since the methodology of the trials and the composition of the solutions differed. Nevertheless they do suggest that an advance has been made in one method of caries prevention. The acid phosphate-fluoride solutions appear to offer the advantages of greater caries protection with topical solutions that do not discolour the teeth. Good results are obtained with a single annual application.

A study is now going on to compare the results of topically applied phosphate-fluoride with stannous fluoride.

K. J. P.

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dentistry in the news

The Association

COUNCIL PROPOSES THOROUGH STUDY OF PUBLIC HEALTH DENTISTRY

The Council on Public Health will recommend to the Board of Governors that a thorough study be made of public health dentistry in Canada. This decision stems from reconsideration of two council-sponsored resolutions adopted at the 1963 annual board meeting. The resolutions criticized inadequate remuneration of public health dentists and administrative handicaps imposed on dental public health programs (1963 *Transactions*, p. 155-157). The council, meeting in Toronto April 6-7, proposed that these two resolutions be rescinded and that a study in depth of public health dentistry be substituted. Recommended terms of reference for this study include (1) the present position of public health dentistry within the profession and in relation to other agencies including

government; (2) the place and responsibility of the profession in relation to activities in public health and to other agencies; (3) personnel needs and required qualifications for dental personnel in public health and related areas; and (4) a recommended future pattern for dentistry in public health. K. F. Pownall of Toronto, D. J. Yeo of Vancouver, and H. K. Brown of Ottawa (chairman) were provisionally appointed to conduct the study subject to approval by the Board of Governors.

In further actions the council:

Rejected a request from a commercial organization for endorsation of company-identified teaching aids, and reiterated the Association's policy of not allowing its name to be in any way associated with commercial products;

Asked the Council on Education to conduct a teacher training conference on dental public health at an early opportunity;

Reiterated a request that the Executive Council petition the federal government to establish a separate dental health grant under National Health Grants structure; and

Urged federal government departments (Northern Affairs, National Defence, Justice and National Health and Welfare) to fluoridate water supplies and installations under federal jurisdiction.

STANLEY PHILLIPS DIES

Dentists throughout Canada will be saddened by the passing of Stanley James Phillips. Dr. Phillips died on April 21 in Oshawa, Ontario. Long active as a practising dentist, Dr. Phillips was better known to Canadian dentists as nominal treasurer of the Canadian Dental Association, having served as chairman of the former Finance Committee from 1953 to 1960. For many years he was also a member of the Association's Board of Governors.

Dr. Phillips will long be remembered by Oshawa citizens whose children he served so devotedly as dentist—often without charge—, as school trustee and as chairman of the Board of Education. In 1960 a grateful city renamed one of its public schools after him. Part of the motion in support of this action bears eloquent testimony to the kind of man he was: "In opposition he can be more pleasant than most men are in support of an idea because he simply seeks the truth and has a thorough respect for every man and his right to think and speak for himself. If it can be said we owe a rental for room on earth, the words 'Paid in Full' could be marked against his account." (See also In Memoriam columns of this issue.)

Canada and the Provinces

NATIONAL BOARD EXPLORES CONJOINT EXAMINATIONS

The National Dental Examining Board will investigate the feasibility of conjoint examinations between itself, provincial dental licensing boards and dental schools approved by the Canadian Dental Association's Council on Education. M. G. Taylor, principal of the University of Alberta and Calgary and president-designate of the University of Victoria, British Columbia, has been appointed a commissioner to undertake the study for the National Board. This action results from views expressed in some quarters that graduates of Canadian dental schools (accredited by the C.D.A. which, in turn, has participation from provincial licensing boards) should be free to register in any province without further separate National Board examination.

The study will embrace various systems of professional examination, including those of the National Board of Dental Examiners in the United States and the Medical Council of Canada. The latter has for many years conducted conjoint examinations with Canadian medical schools.

A foremost authority on health insurance, Dr. Taylor is well known to Canadian dentists. He was one of two principal speakers on socio-economic aspects of dentistry at the 1962 C.D.A. annual meeting in Vancouver.

MECHANICS ACTIVE IN B.C.

The following explanation of recent legislative activity appeared in the April issue of the *Bulletin of the British Columbia Dental Association*:

> The 1964 session of the B.C. legislature has just prorogued and with it ended one of the strongest lobbies that the B.C. House has ever seen. The dental mechanics undertook a venomous campaign to discredit the College of Dental Surgeons of B.C., to the point where it became difficult to keep up with the denials of the lies they were telling. The quarter-page newspaper advertisement, containing numerous misstatements, was well-timed by them to appear in the Vancouver papers on the same day that the estimates of the Minister of Health were before the House, at which time any member of the House can get up and talk openly on any subject related to health.
>
> As was expected, the extremely vocal minority of four or five M.L.A.s strove valiantly to make an issue out of the alleged lack of co-operation on the part of the members of the College of Dental Surgeons. Their goal was to have introduced into the House, as a private Bill, amendments to both the Dentistry Act and the

Dental Technicians Act, which would nullify the certificate of oral health and thereby permit the dental mechanics to enter the field of immediate denture prosthesis.

The president, the Council members from Victoria, the public relations counsel, the executive secretary, with some fine assistance from a group of Victoria dentists, spent many hours giving the true picture to interested backbenchers. Despite press reports to the contrary, the Minister of Health maintained an absolutely firm position in refusing to budge from the present legislation which prescribes the activities of the dental mechanics. It became patently obvious in the closing days of the legislature that the dental mechanics had greatly overplayed their hand and that the great majority of M.L.A.s resented their approaches and recognized the inherent dishonesty in all of their representations.

The president of the Council, in directing the strategy of dealing with the immediate problem, had a most unenviable task. The denials of the lies they were telling had to be made in such a way that they would effectively prove the false position of the mechanics, without providing the fuel to kindle further misstatements by the opposing side. Excellent support was received from sources which hitherto had not taken so strong a stand on behalf of the health professions. Several members of the legislature were very effective and outside the legislature, communications media took very strong positions in favour of the professional approach.

Dental Organizations

B.C. ORGANIZATIONS DONATE TO EDUCATION FUND

British Columbia dentists are responding to the nation's dental education needs. In lieu of sending flowers in cases of bereavement, the College of Dental Surgeons of British Columbia and the British Columbia Dental Association now make living memorial donations to the Canadian Fund for Dental Education. The provincial association recently contributed $100 to this fund. Established in 1963, the Canadian Fund for Dental Education assists dental schools through teacher training, research, fellowships, scholarships and loan funds. Donations received so far by the Fund exceed $35,000. This year the Fund will allocate up to $6,000 in support of teacher training fellowships.

PEACE RIVER DENTISTS HOLD QUARTERLY MEETING

Canadian Dental Association president James Zimmerman and secretary D. W. Gullett addressed the recent quarterly meeting of the Peace River and District Dental Society. Steven Fedoruk of Fort St. John, British Columbia, was elected president of the society at the business meeting. Clinician at the scientific meeting on the following day was Robert Blackburn of the University of Alberta.

This society which draws members from Alberta and British Columbia, normally has one hundred per cent attendance at its meetings.

B.C. INTERIOR DENTISTS PROVIDE BURSARY

When the Interior Dental Society recently held its spring convention at Kamloops, British Columbia, a $250 bursary was donated to assist a dental student, preferably from the interior of the province. This award will be made annually by the Scholarship and Awards Committee of the University of British Columbia.

ISLAND SOCIETIES OF BRITISH COLUMBIA HOLD JOINT MEETING

R. D. Haryett, professor of orthodontics at the University of Alberta, recently lectured to a combined meeting of the Victoria and Upper Island Dental Societies. Dr. Haryett discussed the development of interdental spaces in the deciduous and mixed dentitions with suggestions on how to provide for this space and methods of maintaining it. He asserted that unilateral space maintainers are usually only partially successful. A full lingual arch provides much better space maintenance.

Desmond Greer-Walker, president of the British Dental Association, was an honoured guest at the meeting. Dr. Greer-Walker recounted with humour some of his experiences in Canada during the course of a Commonwealth tour of dental organizations.

EDMONTON SOCIETY ALERTED FOR ROYAL COMMISSION REPORT

Canadian Dental Association secretary D. W. Gullett advised the Edmonton and District Dental Society to be prepared to study the report of the Royal Commission on Health Services as soon as it is released. Speaking in Edmonton on February 27, Dr. Gullett also warned of the pressure being exerted for socialized health services, particularly from social scientists. It is important, Dr. Gullett stated, to bridge the gap between dental and social science for better understanding and better relations.

James Zimmerman, president of the Canadian Dental Association, reported on Asso-

ciation activities and warned that while dentists are meeting the demands of the people, they are not meeting the needs because of maldistribution, lack of public information and lack of participation in the political life of the country.

Dr. Zimmerman and Dr. Gullett were in Edmonton for the 1964 annual presidential tour of western Canada.

A. Clermont of Edmonton and Dr. Gullett received life memberships in the Edmonton society. Both are 1923 graduates of the University of Toronto.

BRITISH DENTAL ASSOCIATION PRESIDENT ADDRESSES EDMONTON DENTISTS

Desmond Greer-Walker, president of the British Dental Association, addressed members of the Edmonton and District Dental Society on malformation, overgrowth and undergrowth of jaws when the society held its April meeting. Dr. Greer-Walker stressed that correct diagnosis and treatment at a favourable state of development are of utmost importance. He also discussed management of crossbite and unilateral prognathism, unilateral hypertrophy, and skeletal problems as well as abnormalities of the tongue.

Dr. Greer-Walker, who is on the staff of the Royal Dental Hospital of London School of Dental Surgery, University of London, was visiting in Edmonton during a Commonwealth tour which takes him to New Zealand, Australia, Singapore and India before returning to England.

MOOSE JAW DENTISTS ELECT

John Zaparinuk was elected president of the Moose Jaw Dental Society for the year 1964. Named with Dr. Zaparinuk were D. F. Kroshus, vice-president; A. D. Leask, secretary; and E. E. Eades, treasurer.

ROYDHOUSE ADDRESSES SASKATCHEWAN DENTISTS

Over 100 members, the largest number in recent years, registered at the annual meeting of the College of Dental Surgeons of Saskatchewan in Saskatoon April 4 and 5. Guest clinician was R. H. Roydhouse of the University of British Columbia who spoke on research in the use of fluorides and caries immunity. Dr. Roydhouse also described the potential use of adhesive filling materials.

Edmonton and District Dental Society president D. H. MacDougall (r.) presents a certificate of honorary life membership to Canadian Dental Association secretary D. W. Gullett. Dr. Gullett retires at the end of this year.

Future annual meetings of the college will be held in the spring to take advantage of bigger attendance at that time of year.

At the business meeting A. F. Muirhead of Moose Jaw was elected president of the college. W. K. Martin of Regina was named vice-president, and F. R. Smith of Saskatoon continues as secretary-registrar.

SPOUGE ADDRESSES BRANDON DENTISTS

"Acute inflammation of the mouth" was the subject of a one-day seminar conducted March 25 by the Brandon and District Dental Society. John Spouge, associate professor and head of oral pathology in the department of biology of the Faculty of Dentistry, University of Manitoba, was the clinician.

Such seminars are co-sponsored by the Manitoba Department of Health as a continuing education service for dentists in rural areas of the province.

DRASTIC RE-ORGANIZATION ADVOCATED FOR ONTARIO DENTISTRY

The Ontario Dental Association should become the Ontario corporate member of the Canadian Dental Association and should take over all the functions of the Royal College of Dental Surgeons of Ontario not

concerned with licensing and regulation of the profession. Local Ontario dental societies should become branches of the Ontario Dental Association. These two key recommendations are embodied in the report of Woods, Gordon and Co., management consultants, retained last year by the Ontario Dental Association and the Royal College of Dental Surgeons to review the organizational structure of the dental profession in Ontario.

Major individual recommendations are as follows:

The O.D.A. should establish a council whose members are the elected representatives of the branches; the present board of governors of the O.D.A. should be discontinued and replaced by an executive board elected by the council; the council should elect the Ontario governors of the C.D.A.;

There should be restrictions on the number of consecutive terms served by members of the boards of the R.C.D.S. and O.D.A., by members of the O.D.A. council, and by the Ontario governors of the C.D.A.;

The O.D.A. should take over the responsibilities of the R.C.D.S. in all matters concerning insurance; only O.D.A. members should participate in insurance and other benefits administered or offered by Canadian Dental Service Plans Inc. or the C.D.A.;

The O.D.A. should make the annual grant to the (Ontario) Dentists' Legal Protective Association, the secretary of the O.D.A. should be the secretary of the D.L.P.A. (replacing participation of the R.C.D.S. in each case), and only members of the O.D.A. should receive the services of D.L.P.A.

A liaison committee established by the O.D.A. and the R.C.D.S. is studying methods of implementing the recommended measures. The full report was published in the April issue of the *Journal of the Ontario Dental Association.*

PHILADELPHIA ENDODONTISTS ADDRESS TORONTO STUDY CLUB

The role of inflammation, interrelationship between disease processes affecting the pulp and periodontium, evaluation of culture techniques for bacteriological control, and root canal sterilization were some of the topics reviewed by two University of Pennsylvania endodontists at a recent all-day seminar of the Toronto Endodontic Study Club.

Criticizing present culture media for their inability to simulate natural conditions in teeth, Philadelphia endodontists I. B. Bender and Samuel Seltzer recommended improved bacteriological control through multiple sampling of root canal contents and the culturing of two or three successively inoculated paper points. Duration of immersion of a paper point in the canal or whether the point is dry or moist is immaterial, they said.

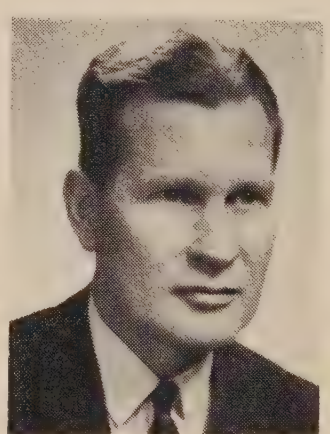
So-called sterilization was labelled a misnomer. The real objective is to reduce the number of micro-organisms to a level where they can be tolerated by the host, and then obliterate the canal completely to eliminate the possibility of subsequent re-infection.

Dr. Bender also described "trephining" or penetrating the cortical bone toward the tooth apex in order to establish drainage. On the other hand, a tooth with a fistula provides its own drainage and its root canal can be obliterated in one sitting.

Both clinicians decried overfilling of root canals which often produces pain and causes treatment failures. In periapically involved teeth instrumentation should penetrate beyond the apex but the canal can be slightly underfilled. In vital teeth instrumentation beyond the apex may stimulate cyst formation and should therefore be terminated short of the apex. The junction of the pulp and periodontal tissues provides the ideal site for pulp amputation with minimal risk of haemorrhage or irritation.

TORONTO ACADEMY HONOURS C.D.A. SECRETARY

Canadian Dental Association Secretary Don W. Gullett was made an honorary life member of the Academy of Dentistry, Toronto, on April 8. G. V. Fisk made the presentation, which was particularly timely because of Dr. Gullett's impending retirement later this year.



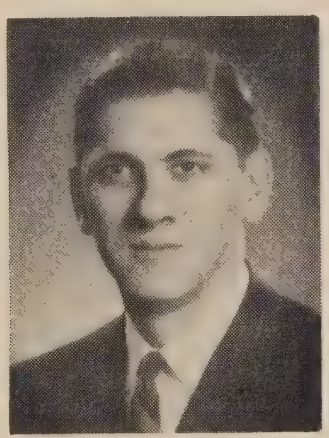
J. E. C. McGowan

J. E. C. McGowan was installed as 1964-65 president of the Academy. Inducted with Dr. McCowan were R. M. Grainger, past president; Murray Cornish, president-elect; M. G. Hardy, secretary; and G. M. Marshall, treasurer.

Named as councillors — two representatives from each of the Academy's four electoral districts—were T. A. Fisher and G. C.

Stirling, Central Toronto; M. A. Kamienski and J. J. Brake, East Toronto; B. J. Levin and W. J. McColeman, North Toronto; and R. A. Bell and J. T. Hing, West Toronto.

DRUCKMAN IS PRESIDENT OF MOUNT ROYAL SOCIETY



L. L. Druckman

L. L. Druckman was elected president of the Mount Royal Dental Society at that organization's forty-third annual installation dinner in Montreal on May 9. Other officers elected with Dr. Druckman were: D. Zacharin, vice-president; H. Levitt, secretary; B. Sedlezky, treasurer; M. Shevell, assistant secretary; and M. Star, historian.

THREE MONTREAL SOCIETIES MEET TOGETHER

W. J. Updegrave of Philadelphia addressed joint meetings of the Société Dentaire de Montréal, the Mount Royal Dental Society and the Montreal Dental Club on March 2. A simplified radiographic technique using the long cone was presented at the afternoon session. That evening Dr. Updegrave described the characteristics of different dental radiographic films, effects of kilovoltage, radiation hygiene and panoramic radiographic technique.

CANCER TREATMENT ADVANCES DESCRIBED IN MONTREAL

Ian Henderson, staff physician at Montreal General Hospital, described the latest developments in cancer treatment when he recently addressed the Montreal Dental Club. Dr. Henderson, who specializes in cancer research and treatment, labelled immunilogical therapy and chemotherapy as the two most promising means of combatting this disease. According to Dr. Henderson surgical and radiological therapy alone have limited success because they are essentially local measures used for a disease that becomes systemic at a very early stage.

Canadian Dental Schools

POSTGRADUATE COURSE AT McGILL

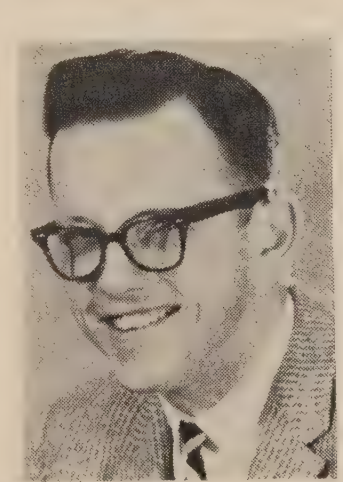
Ten dentists attended a postgraduate course on removable partial denture prosthesis in general practice at McGill University's dental faculty April 26-28. The course included presentations on related dental materials and the role of orthodontics and periodontics in partial denture prosthesis. Dean James McCutcheon, A. F. Cameron, O. P. Sykora, F. E. Shamy, R. F. Harvey and D. W. Henry were staff members who presented the course.

J. E. RYAN GOES TO MANITOBA

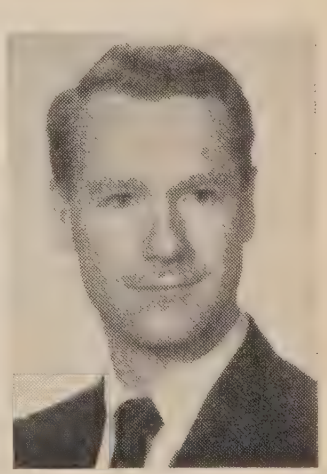
J. E. Ryan of Vancouver has been appointed associate professor in the Department of Prosthodontology at University of Manitoba's Faculty of Dentistry. Dr. Ryan is a 1960 graduate of the University of Washington, Seattle. He received a master's degree from Ohio State University in 1963. He is a member of the Canadian Academy of Prosthodontics and Xi Psi Phi Dental Fraternity.

CLEALL NAMED HEAD OF ORTHODONTICS AT MANITOBA

J. F. Cleall, who was director of orthodontic research and co-ordinator of the orthodontic department at the Eastman Dental Dispensary, Rochester, New York, has been appointed assistant professor and head of the orthodontic section at Manitoba's Faculty of Dentistry and research associate at Winnipeg Children's Hospital. Educated in New Zealand, Dr. Cleall earned a master's degree



J. E. Ryan



J. F. Cleall

in orthodontics in 1959. Known for his research in cinefluorographic study of deglutition which won him the Milo Hellman Award of the American Association of Orthodontists, Dr. Cleall has also studied and reported upon the effects of strontium[90] on developing dental structures, bone marking agents for longitudinal growth studies, and the effect of maxillary expansion.

Economics

ALBERTA SEEKS, NOVA SCOTIA GAINS DENTAL SERVICE CORPORATION

An act to establish a dental service corporation was passed by the Nova Scotia legislature in February. Nova Scotia Dental Services Incorporated is empowered by the act to provide prepaid dental care, treatment and services throughout the Atlantic Provinces. The corporation may also co-operate with and assist the federal and provincial governments in connection with the operation of health services under national and provincial health plans. It may also co-operate with provincial dental associations in the Atlantic provinces and with the Canadian Dental Association, according to the terms of the act.

Named as founding members of the corporation were the following dentists: C. W. Caldwell of Dartmouth, H. J. MacConnachie of Birch Grove, C. W. Curry of Rockingham, J. F. Burke of Sydney, J. R. Fraser of Chester, T. L. Rogers of Shelburne, Harold McCormack of Truro, plus associates present and future and their successors.

Legislation for a dental service corporation sponsored by the dental profession has also been sought in Alberta. According to an amendment to the Dental Profession Act, read recently in the Alberta legislature, July 1 is the deadline after which the association may offer a dental services plan or establish a non-profit corporation for administration.

Newspaper reports indicate that cabinet ministers in Alberta hope dentists will introduce a prepayment plan and thus avoid the necessity of including dental treatment under the Alberta Medical Plan.

Nova Scotia's new dental service corporation is the third to be established in Canada. Other provinces that have corporations are Quebec and British Columbia. So far Dental Services Association of British Columbia is the only corporation with a specific prepayment plan in prospect.

CONFEDERATION LIFE ANNOUNCES NEW GROUP DENTAL INSURANCE PLAN

Confederation Life is now offering a comprehensive-type group dental insurance plan. The plan may be written on groups with 50 or more participating employees and may include their dependants. It can be either a separate benefit or part of other health benefits, but the employer must pay 50 per cent of the cost of the dental insurance.

Highlights of the plan are: a calendar year deductible of $25 per individual with a maximum family deductible of three individual deductibles in any calendar year, and choice of different co-insurance percentages (50, 60, 70, 75 or 80 per cent). Expenses incurred as a result of examinations, radiographs and treatments recommended by a licensed dentist are covered provided the charges are not unreasonable in the light of the schedule of fees recommended for use in the area where the employee resides. There is no limit on the number of check-ups or routine examinations. Orthodontic care may be included on a 50 per cent co-insurance basis.

The maximum payable on behalf of any one covered individual is: (a) $200 for the calendar year in which the individual became insured; (b) $200 for the next calendar year if the individual became insured between July 1 and December 31; and (c) for any other calendar year, the lesser of $500 or $1,000 less any benefit payable on account of dental expenses incurred in the immediately preceding two calendar years combined.

Not insured is the replacement of dentures during the first 12 months of coverage; the replacement of dentures made within less than five years following the placement or replacement of dentures for which the benefits were payable; the replacement of lost, misplaced or stolen dentures; and the servicing of dentures (except that benefits are payable for one rebasing of dentures for which the benefits were payable).

TRAVELERS OFFERS DENTAL PLAN

The Travelers Group has announced a new Dental Expense Benefit Plan. The plan has three parts, parts 2 and 3 being optional. Part 1 covers most common dental services, part 2 new full and partial dentures or fixed bridges, and part 3 orthodontic care.

Part 1 of the plan contains a $25 deductible for each payment period (for prophylaxis the

deductible can be waived) and benefits are scheduled up to $200 maximum for a payment period. Part 2 schedules benefits up to $200 during any three-year period beginning with the incurral of the first scheduled expense. Part 3 provides for a maximum payment of $350 during the individual's lifetime.

Initially, the Dental Expense Benefit will not be written alone.

MORE DENTISTS; RATIO NO BETTER

Canada has 6,103 dentists registered, 104 more than a year ago, but the dentist-population ratio remains the same at one dentist for 3,096 people. For the past five years the ratio has steadily worsened. This year it stayed the same as a year earlier. Four provinces (New Brunswick, Quebec, Saskatchewan and Alberta) have more people per dentist than last year. British Columbia's position (one dentist for 2,335 people) is best and Newfoundland's continues to be worst (1: 10,234). These facts appear in "Dental Personnel in Canada 1964" published in the May issue of the Journal. The report is prepared annually by the Association's Bureau of Economic Research.

EXPANDED ROLE FOR AUXILIARIES IN U.S.?

The American Association of Dental Schools has reaffirmed its support of expanded experimentation on effective training and utilization of the dental auxiliaries. The A.A.D.S. at its recent annual session in Los Angeles adopted a resolution urging expansion of such training programs "as a major contribution to the solution of the dental manpower problem."

Royal Canadian Dental Corps

INCREASE IN RANK STRUCTURE GRANTED

The Department of National Defence has announced the first general revision in officer rank structure of the Royal Canadian Dental Corps (Regular) since 1955. The new establishment provides for the addition of one colonel, four lieutenant-colonels and eight majors. To maintain the overall strength at the number previously authorized, 13 vacancies in the rank of captain have been deleted.

Lt.-Col. R. B. Jackson, currently commanding officer of No. 14 Dental Company, Winnipeg, is promoted to acting colonel.

The following majors become acting lieutenant-colonel: J. A. Lauziere, R.C.A.F. Station Uplands; D. H. Protheroe, Royal Canadian Dental Corps School, Camp Borden; F. G. Charman, Zweibrücken, Germany; H. R. Kettyls, Dental Directorate, Ottawa; and R. A. Fell, R.C.A.F. Station, Goose Bay, Labrador.

Promoted to major are the following senior captains: R. H. Headley, Fort McLeod, Hemer, Germany; V. M. McMaster, Shearwater, Nova Scotia; J. F. Eadon, Fort York, Soest, Germany; D. R. Girard, No. 6 Repair Depot, Trenton, Ontario; L. A. Reynolds, Fort Beausejour, Hemer, Germany; H. K. Meisner, Baden Soellingen, Germany; W. R. Collier, Fort Prince of Wales, Hemer, Germany; J. H. Marion, Metz, France; B. A. Gaudet, Vancouver, British Columbia; J. O. L. Bourget, Zweibrücken, Germany; J. J. Y. Turcotte, Grostenquin, France; J. L. Y. Cyrenne, Middle East; and J. F. Begin, Goose Bay, Labrador.

NEW REGULAR FORCE DENTAL UNIT

A new unit known as No. 1 Dental Detachment was formed on April 1 from the five dental clinics in the Ottawa area which were formerly part of No. 13 Dental Company, Trenton. Lt.-Col. J. C. Brick of Windsor, Ontario, commands the new unit. Lt.-Col. Brick was formerly senior clinician in the Ottawa area.

LT.-COL. EVANS INSPECTS MILITIA UNITS

Lt.-Col. G. C. Evans has completed a coast to coast inspection of militia dental units taking part in the General Efficiency Competition. The winner of the various trophies will be announced later this summer.

MAJOR GRANT RETIRES

Following a military career which dates from 1941, Maj. C. G. B. Grant of Durham, Ontario, has retired from the Corps. As a civilian Maj. Grant will continue his association with the Corps as a Part V Dental Officer employed at R.C.A.F. Station Uplands.

Public Health

McCABE TO OTTAWA

C. A. E. McCabe

Health Minister Judy LaMarsh has announced the appointment of C. A. E. McCabe as dental public health officer in the Dental Health Division, Department of National Health and Welfare. Dr. McCabe is a member of the Canadian Dental Association's Council on Public Health. A native of Valleyfield, P. Quebec, he received his doctorate of dental surgery from McGill University in 1928 and the diploma in dental public health from the Université de Montréal in 1956. For many years a general practitioner in Valleyfield, Dr. McCabe latterly served with the Dental Hygiene League of the Province of Quebec. He also lectured at the School of Hygiene, Université de Montréal. Dr. McCabe has held numerous appointments within the profession and in related agencies. A former (1942-46) governor of the College of Dental Surgeons of the Province of Quebec, Dr. McCabe was also active in the Canadian Public Health Association and has served as secretary of the Quebec Division, Health League of Canada.

FULL-TIME DENTAL DIRECTOR PROPOSED FOR HALIFAX

Greater Halifax needs a dental division headed by a full-time trained public health dentist. This advice comes from a Canadian Public Health Association advisory committee which recently studied Halifax-Dartmouth-Halifax County public health services at the request of local health authorities.

Also recommended was the appointment of an associate dental director to supervise clinical services for school children, in hospitals, for welfare assistance recipients and in rural areas of adjoining Halifax County. Other parts of the committee's report propose co-ordination of area-wide dental and other health services, as well as provision of dental services for handicapped children at Halifax Children's Hospital. G. T. Mitton, professor of dental public health at the University of Toronto, served as dental consultant to the advisory committee.

QUEBEC COLLEGE WITHDRAWS SPECIALTY STATUS FROM DENTAL PUBLIC HEALTH

The College of Dental Surgeons of the Province of Quebec has reduced to four the number of dental specialties recognized in that province. Specialists are now recognized in oral surgery, orthodontics, prosthodontics and periodontics. The college has withdrawn specialty recognition from dental public health. Nevertheless, the nine holders of certificates granted before February 21, 1964, may continue to carry the title of Specialist in Dental Public Health.

International Items

F.D.I.-A.D.A. MEETING IN SAN FRANCISCO

More than 25,000 people are expected to attend the annual sessions of the Fédération Dentaire Internationale and the American Dental Association in San Francisco this November. Dates for the F.D.I. session are November 7-14 and for the A.D.A. session November 9-12. Scientific, business and social programs of the sessions will be held in the San Francisco Civic Auditorium and in major hotels.

Scheduled for simultaneous French-Spanish-German-English interpretations will be a conference on dental public health, a conference on geographic factors of oral disease, and a forum on operative dentistry. Other outstanding programs will include conferences on dental materials and oral surgery, and half-day cardiopulmonary resuscitation seminars. Closed-circuit coloured television will be used to show surgical procedures of transplantation of teeth and implantation of dentures.

Canadians intending to attend the San Francisco meetings are urged to contact the American Dental Association Housing Bu-

reau at the A.D.A. Central Office, 222 East Superior Street, Chicago, Illinois, 60611, U.S.A.

Further information regarding the F.D.I. session may be obtained from G. H. Leatherman, secretary-general, 35 Devonshire Place, London, W.1, England. Information about the A.D.A. session may be obtained from Harold Hillenbrand, secretary, American Dental Association, 222 East Superior Street, Chicago, Illinois, 60611, U.S.A.

ISRAEL'S NEW DENTAL SCHOOL DEDICATION SLATED FOR AUGUST 11-13

Dedication ceremonies for the new Hebrew University - Hadassah School of Dentistry founded by Alpha Omega Fraternity will take place in Israel August 11-13.

Isaac Schour, dean of the University of Illinois College of Dentistry, will be chairman of a three-day scientific congress on Changing Concepts in Dentistry to be held at the time of the dedication. Distinguished dental educators and practitioners from all over the world will participate in the program.

The new $2 million school, which includes the Hebrew University-Alpha Omega Research and Postgraduate Centre, will be located at Ein Karem, site of the medical campus of the Hebrew University of Jerusalem. Together with the new Medical School and School of Pharmacy, it will be part of the university's teaching centre known as the Schools of Healing.

With the opening of this new building Israel's only dental school will be transformed almost overnight from an institution with makeshift quarters and inadequate facilities to one with the most modern in the world. At present the school is able to train only 25 new dentists a year. With its new facilities it is expected to double the number of graduates.

Many Canadian dentists and their friends are expected to visit Israel for the dedication ceremonies. Alpha Omega is scheduling a series of chartered flights for the event. Further details on these flights may be obtained from Alpha Omega Fraternity, 11 East 69th Street, New York 21, U.S.A.

CANADIANS INVITED TO VENEZUELA CONGRESS

An invitation has been issued to Canadian dentists to attend the First International Dental Congress of Venezuela, August 2-8, in Caracas, Venezuela. Internationally known clinicians will participate in the scientific program to be held at the Macuto-Sheraton Hotel located on the shores of the Caribbean Sea, 45 minutes from Caracas. Further information may be obtained from Guillermo Mazzei Uzcategui, general congress Secretary, Apartado de Correos 1341, Caracas, Venezuela.

NORTH CAROLINA OFFERS PROSTHODONTICS COURSE

The University of North Carolina School of Dentistry offers a new two-year graduate course in prosthodontics leading to the degree of master of science in dentistry. The program meets the requirements of the American Board of Prosthodontics and provides a background for teaching and research. A certificate course in prosthodontics is available for dentists who are primarily interested in clinical practice and who desire to qualify themselves for the American Board of Prosthodontics. Both programs include fixed and removable prosthodontics, ceramics, cleft palate prosthodontics, and surgical prosthodontics. Courses in allied dental areas and basic sciences are also included in the curriculum.

Further information and application forms are available from J. C. Brauer, dean, School of Dentistry, University of North Carolina, Chapel Hill, North Carolina, U.S.A.

Awards and Honours

W. FRASER SMITH of Regina received an honorary membership in the College of Dental Surgeons of Saskatchewan to mark his fiftieth anniversary as a college member. Canadian Dental Association president James Zimmerman made the presentation when he visited Regina earlier this year. Dr. Smith is regarded as an expert in prosthodontics by his Saskatchewan colleagues.

D. W. GULLETT. Members of the College of Dental Surgeons of Saskatchewan presented a painting to Dr. Gullett on his final visit to Saskatchewan as secretary of the Canadian Dental Association. This presentation reflects recognition and appreciation of Saskatchewan dentists for Dr. Gullett's services to dentistry over the years.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

PROFESSIONAL ETHICS

To the Editor:

The universality of men's aversion to one another is a shocking feature of today's world. This has become very evident in our profession, particularly in the larger centres. I have therefore been urged to bring this matter to the attention of our members through a letter to the editor.

Numerous complaints of unethical behaviour are being brought to the writer's attention. The two most prevalent grievances concern extraordinary fees charged for some dental services and the re-referral of patients originally referred to specialists for special services or emergency treatment.

If the principles of ethics could be legislated, more heed would be paid by some professional men than is now the case. But because we cannot enact moral conduct, some take advantage and act in an unbecoming manner because in so doing no penalty is exacted from the individual.

Ethical conduct goes to the very heart of human nature. The question of right and wrong is not a simple one. But it is of vital importance to the well-being of individual dentists and patients.

An ethical practitioner does not justify his actions by claiming that he keeps within the law. After all, an act that is quite lawful may yet be immoral and unethical. A penalty should not be necessary as a deterrent in such cases; only a conscientious spirit of fair play, honourable dealings and keeping one's word are the required attributes. In the past it was relatively easy to separate ethical actions from those considered morally objectionable. But gradually there has come about a blurring of this distinction. In our intensely competitive society we tend to judge success in terms of material results, regardless of how these results were attained.

Because of the gradual relaxation of moral standards within society and in our profession, our Association found it necessary to adopt a Code of Ethics as a guide to professional conduct. The purpose of this code is to eliminate individual attitudes and practices deemed unacceptable or undesirable by the majority of the members of the profession. By adopting this Code of Ethics, we, the members of the dental profession, have agreed — whether expressed or implied — to adhere to the prescribed form of conduct laid down in that code. Each Canadian dental school endeavours to teach its students ethical behaviour as professional members of our Association. Students, however, imitate what they see in their teachers, not what they are taught in class or read in books. In short, moral values cannot be taught. They must be inherited or acquired in the student's formative years from parents, teachers and associates. If moral rectitude is not acquired early in life, then self discipline is impossible.

It is not enough for some dentists to be ethical. Every member of our Association should be imbued with proper ethical concepts. Even the best of mortals is seldom capable of pure unselfishness for any considerable period of time. Therefore we cannot afford to remain indifferent to the dictates of a code of moral conduct among men.

Many will argue that dentistry is a business as well as a profession. If we accept this statement, we are still bound by a code of business ethics, one that is probably less restrictive but nevertheless based on principles of fair play and fair competition. Achievement, whether in dental practice or business, is not gauged by the size of income alone. Successful conduct of a business or profession is based on excellence of performance, a fair profit in return for production or services rendered, ethical relations with competitors or confrères, and ethical consideration for the customer or patient. These are the principles that identify a profession or a business with excellence of service and noble actions.

Our code imposes restraints on unfair competition and unjust charges which,

though not unlawful, are unethical. But the principle of fair dealing applies equally in competitive situations, notwithstanding the unscrupulous conduct of a few members of the profession who sometimes make it difficult for the majority to live up to these ideals. For it is the wholesome majority of members who give our code its real meaning and who place our profession in proper perspective in the eyes of other professional groups and the public.

Our Association is primarily concerned with unfair, unscrupulous and defamatory conduct on the part of certain members. It is the duty of an association to familiarize itself with these unethical practices and to take appropriate corrective action.

Most professionals rise far above the concept of immediate return for service. They know they provide a necessary and valuable service, and that rendering of service is the reason for their existence. Only that profession which has service as its objective can win the confidence of the public, and only that profession which wins the goodwill of the public can realize eventually the financial return for its members which makes their existence possible.

Dealings between professional men, when based on ethical principles, strengthen not only the moral fibre of the individual but of the association as well. The defence of the man who says he is not bound except by written agreement or by contract may be upheld in a court of law but not before the bar of professional ethics. He who is unethical and does not conform to a prescribed Code of Ethics may find himself ostracized not only by his peers but by the public as well.

If we are willing to live within the protective confines of our Association, then as members of that Association we should identify ourselves with our code by adhering to its principles.

J. P. McGuigan, D.D.S.,
Chairman,
C.D.A. Council on Ethics,
1584 *Robie Street,*
Halifax, Nova Scotia.

DISCOLORATION OF RESTORATIONS BY FLUORIDE DENTIFRICE

To the Editor:

I am replying to Dr. Trevor Lyons' letter in the January issue of the *Journal of the Canadian Dental Association.* I commend Dr. Lyons for his active interest in the use of fluoride therapy, but wish to question his understanding of certain facts he mentions in his article.

Topical stannous fluoride has been used by tens of thousands of dentists throughout the world for several years now. I, myself, have had 19 years' experience with this material using it on thousands of subjects in clinical studies. I have never seen nor heard of a single substantiated case where stannous fluoride had discoloured anterior filling materials. Filling materials are not affected in any harmful way by the use of stannous fluoride. Anterior fillings may take up quantities of tin and become discoloured only in cases where there is some porosity in the filling, that is, when the filling is in need of replacement. I believe that if you will carefully examine any fillings which have been stained, you will see indications of porosity. Ordinarily, the kind of pigmentation which is seen with these fillings occurs around the margin of the filling and indicates demineralized tooth structure in this area.

My major experience, clinically and in the laboratory, is limited to one stannous fluoride toothpaste (Crest). However, I can speak for it. Again, I have neither seen nor heard of a single example of the staining of anterior filling materials by this toothpaste. From a knowledge of the mechanisms involved, I would predict that other stannous fluoride toothpastes would not cause this kind of staining either.

As is the case for other therapeutic products for human use, the reliable way to show its properties is through clinical studies. Laboratory techniques are valuable as screening tools, but they cannot be assumed to give conclusive results. The best laboratory (and clinical) techniques have been developed through many years of research.

I urge Dr. Lyons to study the literature on the subject (and it is extensive) before drawing further conclusions. The American Dental Association publication, *Accepted Dental Remedies* discusses stannous fluoride therapy and offers an excellent list of references. Included is some of the work performed by Canadian researchers. I am sure these men could be helpful also. The important point to remember is that the clinical research in the field of fluoride therapy is extensive. One small laboratory study cannot hope to contradict present conclusions.

Joseph C. Muhler, D.D.S., Ph.D.,
Department of Biochemistry,
Indiana University Medical Centre,
Indianapolis, Indiana.

book reviews

OUTLINE OF PHARMACOLOGY AND THERAPEUTICS

Sister M. Mariel. Springfield, Illinois, Charles C. Thomas, 1963. (Available from The Ryerson Press, Toronto) 297 p. Illus. $15.00

The purpose of this text is to serve as a quick reference book in regard to the therapeutic effects, dosage, and toxic effects of all drugs currently popular in medicine. It classifies drugs according to the physiological system of the body affected, and contains information in regard to methods of drug action, and their administration.

The primary objective of the book is fulfilled in that it is an outline of pharmacology and therapeutics to complement the pharmacology textbook.

Clifford Reynolds

DENTISTRY AS PERSONAL SERVICE

J. L. Blass. Philadelphia and Montreal, J. B. Lippincott Co. 153 p. Illus. $7.00

This is a relatively small book of 153 pages, but it is filled with useful information for the young graduate as well as the dentist who has been in practice for years. To get the most out of this excellent book, it is necessary to read it more than once. At the same time the reader should think of specific situations in which the information could be applied in practice.

The author discusses the psychological aspects of practice. Too infrequently is the patient treated both psychologically and physiologically by the dentist and his staff. The needs, desires, wants and wishes of the patient and the dentist are considered. The necessity of making a correct diagnosis, being able to motivate, educate and communicate with the patient are stressed. The lack of the ability to do so restricts the dentist to procedures such as fillings, extractions and dentures without due regard for the patient's total needs as an individual.

Considerable space is devoted to the importance of a case history, how to take a complete case history, and what the answers should mean to the dentist. All too frequently treatment failures could be prevented by a correct, complete case history.

Dr. Blass discusses the keys to successful handling of patients and emphasizes that patients appreciate explanation and reassurances, understanding, politeness, kindness, sociability, conversation, carefulness and attentiveness. One must avoid showing rejection of the patient by word or look as that creates resentment.

Dr. Blass explains why the patients pay or do not pay their dental accounts, how to treat friends professionally, psychological problems regarding fees, and so forth.

This is a book that can make the practice of dentistry more interesting and more successful. It presents the dentist with a greater challenge to provide a more complete service.

D. S. Moore

MANAGEMENT OF ORAL EMERGENCIES

D. M. Laskin. Springfield, Illinois, Charles C. Thomas, 1964. (Available from The Ryerson Press, Toronto) 107 p. Illus. $6.50

This book is brief. Exclusive of bibliography and index it is contained within less than one hundred pages. In spite of this, the text deals with a wide range of circumstances in a forthright manner. In the second paragraph of his preface, Dr. Laskin states succinctly his opinion of the book's usefulness: "Organization of the text for easy reference, however, should not preclude its being read in entire sequence. Prior acquaintance with the contents will not only enable one to act more rapidly and effectively in an emergency, but will also reduce the number of pseudo-emergencies arising from unfamiliar situations. Equally important, an awareness of the problems which can arise will result in stimulated efforts to prevent their occur-

rence. Where possible, of course, prevention of complications should be one of the primary objectives of every clinician."

The contents of the book are arranged in seven chapters, as follows: (1) Introduction, (2) Admitting emergencies, (3) Emergencies associated with local anaesthesia, (4) Operative emergencies, (5) Postoperative emergencies, (6) Medical emergencies, and (7) Summary and conclusions. Following the summary and conclusions is a most useful appendix listing and briefly discussing drugs used in the treatment of oral emergencies.

It is the reviewer's opinion that this is a most worthwhile book and one which contains much vital information for the practising dentist.

W. R. Schram

in memoriam

ALEXANDER HOOPER GOODWIN — Dr. A. H. Goodwin of Edmonton died on March 4, 1964. He was 96. Dr. Goodwin was born in Baie-Verte, Nova Scotia, in 1868. He graduated from the University of Maryland in 1889 and practised in Edmonton and Vegreville, Alberta. Dr. Goodwin is survived by a daughter, Mrs. H. R. Walker of Calgary; daughter-in-law, Mrs. Agnes Goodwin of Vermilion; eight grandchildren; and 22 great-grandchildren.

WARREN LESLIE HEASLIP — Dr. W. L. Heaslip of Toronto died on March 24, 1964. He was 60. Dr. Heaslip was born in Glenboro, Manitoba, in 1903 and graduated from the Royal College of Dental Surgeons of Ontario in 1924. Surviving Dr. Heaslip are his wife, Susan Elizabeth; a daughter, Mrs. A. L. Cringan; two sons, Dr. Warren Heaslip, Jr. and David; and a grandson.

EMERY COE JONES—Dr. E. C. Jones of New Westminster, British Columbia, died on March 21, 1964. He was 84. Dr. Jones was born in Lynden, Ontario, in 1879. He received his early education in Hamilton and graduated from the Royal College of Dental Surgeons of Ontario in 1906. Before going to New Westminster he practised for a time in Dundas, Ontario. Dr. Jones served as president of the British Columbia Dental Association in 1918. In 1919 he was elected a member of the Council of the British Columbia College of Dental Surgeons. He was re-elected to this council for 28 consecutive years, serving as president for eight years and as registrar for four years. Dr. Jones was a fellow of the International College of Dentists and in 1962 was made an honorary member of the Canadian Dental Association. Besides his wife, Jessie, Dr. Jones is survived by two sons, Howard of West Vancouver and Clifford of Lethbridge; one daughter, Mrs. Audrey Campbell of Bralorne, British Columbia; and seven grandchildren.

STANLEY JAMES PHILLIPS—Dr. S. J. Phillips of Oshawa, Ontario, died on April 21, 1964. He was 74. Born in Shrigley near Dundalk, Ontario, in 1890, Dr. Phillips received his early education in Orangeville. He graduated from the Royal College of Dental Surgeons of Ontario in 1917 and enlisted in the Canadian Army following a brief interlude of practice in Cobourg. Following release from the army, Dr. Phillips established a practice in Oshawa. The welfare of organized dentistry was one of his most active pursuits. At different periods he served as president of the Durham-Ontario Dental Association, on the Board of Directors of the Royal College of Dental Surgeons of Ontario, and on the Board of Governors of the Canadian Dental Association. Dr. Phillips was chairman of the Canadian Dental Association's Finance Committee from 1953 to 1960. He also was a member of the Senate of the University of Toronto. International recognition came to Dr. Phillips when he was made a fellow of the American College of Dentists. Dr. Phillips is survived by his wife, Florence; his son, Dr. J. M. Phillips, of Oshawa; and three sisters, Mrs. D. Woodside of Brockville, Mrs. M. Gibson of Creemore, and Miss Florence Phillips of Toronto.

announcements • avis

CANADIAN DENTAL ASSOCIATION

1964	Edmonton	June 28 - July 1
1965	Quebec City	May 30 - June 2
1966	Halifax	June 12 - 15
1967	Toronto	May 14 - 17

FEDERATION DENTAIRE INTERNATIONALE

San Francisco	November 7 - 14
Vienna	June 26 - July 3
Israel	
Paris	

June 28, 1964	Canadian Society of Dentistry for Children	Macdonald Hotel, Edmonton	Dr. C. R. Castaldi	Faculty of Dentistry, University of Alberta, Edmonton, Alta.
June 28, 1964	Canadian Academy of Periodontology	Macdonald Hotel, Edmonton	Dr. J. E. Speck	170 St. George Street, Toronto 5, Ont.
June 29-30, 1964	Canadian Society of Oral Surgeons	Macdonald Hotel, Edmonton	Dr. D. H. MacDonald	2 College Street, Toronto 2, Ont.
June 29-July 1, 1964	Canadian Society of Orthodontists	Macdonald Hotel, Edmonton	Dr. J. J. Schachter	209 Canada Bldg., Saskatoon, Sask.
June 29-July 3, 1964	British Dental Association	London, England	Dr. J. N. Peacock	13 Hill Street, London, W.1, England
July 5-8, 1964	Atlantic Provinces Dental Convention	Charlottetown, Prince Edward Island	Dr. L. I. Duffy	202 Queen Street, Charlottetown, P.E.I.
July 7-10, 1964	American Dental Society of Europe	Brighton, England	Dr. A. E. F. Sturridge	35 Harley Street, London, W.1, England
July 7-11, 1964	European Orthodontic Society 40th International Congress	Athens, Greece	Prof. H. N. Haralabakis	Acadimias 31, Athens 135, Greece
Aug. 2-8, 1964	1st International Dental Congress of Venezuela	Caracas, Venezuela	Dr. P. E. Henriquez	Apartado de Correos 1341, Caracas, Venezuela
Aug. 11-14, 1964	Israel Dental Association	Jerusalem and Tel-Aviv, Israel	Dr. I. Seifert	49 Bar Kochba Street, Tel-Aviv, Israel
Aug. 24-28, 1964	New Zealand Dental Association	University of Auckland, Auckland, N.Z.	Mr. D. I. Pert	12 Kitchener Street, Auckland C.1, N.Z.
Sept. 10-12, 1964	Newfoundland Dental Society	Corner Brook, Newfoundland	Dr. R. W. MacLeod	63 Broadway, Corner Brook, Nfld.
Sept. 11-13, 1964	Northern Ontario Dental Association	North Bay, Ontario	Dr. R. C. Weegar	539 Cassells Street, North Bay, Ont.
Sept. 27-29, 1964	Eastern Ontario Dental Association	Skyline Hotel, Brockville	Dr. K. L. Hargadon	298 Elgin Street, Ottawa 4, Ont.
Oct. 24-25, 1964	Montreal Dental Club Pre-Clinic Seminar	Queen Elizabeth Hotel, Montreal	Dr. G. M. Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Oct. 26-27, 1964	Montreal Dental Club Fall Clinic	Queen Elizabeth Hotel, Montreal	Dr. G. M. Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Nov. 9-12 1964	American Dental Association	San Francisco California	Dr. H. Hillenbrand	222 East Superior Street, Chicago 11, Illinois, U.S.A.
Nov. 26, 1964	Annual Winter Clinic, Toronto Academy of Dentistry	Royal York Hotel, Toronto	Mrs. N. H. Montgomery	230 St. George Street, Toronto 5, Ont.

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The Canadian Dental Association

Le syndrome de Pierre Robin

par Paul Mercier, D.D.S., Danville, Pennsylvanie*

Il est surprenant de constater combien peu reconnu ou compris est le syndrome qui porte le nom de Pierre Robin. Le taux élevé de mortalité de cette maladie, lorsqu'elle est laissée à elle seule, peut être considérablement diminué par un diagnostic précoce et un traitement adéquat.

Pierre Robin publia à Paris,[1,2] en 1923, un article où il expose les problèmes que pose chez le nouveau-né, une micrognathie congénitale. Le manque de développement de la mandibule cause une rétrogression de la langue qui devient alors un obstacle à des échanges respiratoires normaux.

Une mâchoire inférieure sous-développée,[3-5] la présence dans la majorité des cas d'une fissure palatine, une rétraction anormale du sternum à chaque mouvement respiratoire et un état cyanotique plus ou moins prononcé, sont les signes caractéristiques de ce syndrome. Il peut être difficile de reconnaître le syndrome de Pierre Robin si on ne s'en réferre qu'à la présence d'une petite mandibule. Il suffit de placer l'enfant sur son dos pour voir apparaître une rétraction du sternum et une cyanose qui démontrent une ventilation pulmonaire inadéquate.

On rencontre la pathogénèse suivante. Nous savons que la langue est retenue dans sa position antérieure par l'action

*Résident en chirurgie buccale, The Geisinger Medical Center.

des muscles génioglosses qui sont attachés aux apophyses géni de la symphyse mandibulaire. La mâchoire inférieure qui est ici sous-développée ne peut retenir la langue dans sa position antérieure normale; cette anomalie favorise une glossoptose ou refoulement arrière de la langue qui bloque les voies respiratoires.

On se perd en conjectures sur l'étiologie de cette malformation. Certains ont proposé une macroglossie congénitale, d'autres une compression intra-utérine qui occasionnerait un manque de développement de la mandibule. Walker[6] essaie d'inclure cette malformation dans la théorie des moulages.

Depuis que cette entité a été reconnue, on a proposé différentes formes de traitement. Pierre Robin[1,2] conseille la position en pronation ou à plat-ventre, afin que la langue soit attirée en avant par gravité. Devant les insuccès de cette méthode dans les cas graves d'obstruction, plusieurs techniques[6] furent bientôt mises à l'essai pour retenir la langue dans une position antérieure. Farber, en 1930, conçoit un appareil qui produit une pression avant aux angles de la mandibule et ainsi déplace antérieurement la mâchoire inférieure et la langue. Ces attelles compliquées qui causent des ulcérations aux endroits de pression doivent bientôt être abandonnées. En 1937, Callister propose l'emploi d'un fil d'acier encerclé autour de la mandibule et suspendue par une poulie à un poids léger. Tholen améliore cette technique en ajoutant une plaque de métal à l'endroit sur la mandibule où le fil exercait une pression. On évite de cette façon l'autosectionnement de l'os, rencontrée si fréquemment avec le fil seul. L'usage encore de nos jours du fil et de la plaque d'acier comme moyen de traction de la mandibule et de la langue prouve indirectement la valeur de cette technique. Il importe de considérer la présence d'un fil inséré à travers le plancher de la bouche comme foyer possible d'infection et aussi la complexité d'un appareil de traction externe comme désavantage sérieux dans l'emploi de cette technique. Cependant, la simplicité avec laquelle le fil peut être inséré sans avoir à recourir à une anesthésie générale, ne devrait pas nous faire complètement abandonner cette méthode. Hadley et Johnson[7] proposaient récemment l'usage d'un fil rigide de type Kirschner inséré à partir d'un angle de la mandibule jusqu'à l'autre à travers la langue retenue ainsi en avant. Les dangers graves d'infection au plancher de la bouche et les lésions possibles du faisceau neurovasculaire du canal dentaire inférieur sont des inconvénients qu'il importe d'évaluer d'une façon plus élaborée avant d'adopter une telle méthode.

En 1946, Beverley Douglas[8] décrit une technique qui va rapidement devenir, grâce à sa simplicité et son efficacité, une méthode classique de traitement. Elle consiste[9] à produire une adhésion cicatricielle entre la lèvre et la langue. Cette dernière est tenue ainsi en position antérieure et l'obstruction respiratoire est corrigée. On se sert comme anesthésie générale de la même technique que l'on emploie pour les corrections de bec de lièvre, soit une anesthésie endotrachéale à l'éther ou à l'halotane. Un lambeau de muqueuse de forme rectangulaire recouvrant la partie ventrale de la langue, le plancher de la bouche, la crête alvéolaire et la surface interne de la lèvre inférieure est décollé et enlevé, en prenant garde d'endommager l'orifice des canaux des glandes sous-maxillaires. Nous avons apporté une légère modification à cette technique en évitant d'inclure dans l'incision le plancher de la bouche et la crête alvéolaire et en ne découpant que deux rectangles, l'un sur la surface dorsale de la langue et l'autre sur la face interne de la lèvre. Ces deux surfaces vives sont ensuite accolées l'une contre l'autre et suturées. En général, une adhésion ferme de la langue à la lèvre inférieure se développe en moins d'une semaine. Dès que l'enfant semble libéré d'une façon permanente de son obstruction respiratoire, le plus souvent après 3-4 mois de traction, les deux surfaces de la langue et de la lèvre peuvent être facilement séparées l'une de l'autre.

Les résultats de cette méthode de traitement de l'obstruction des voies respiratoires sont remarquables. Depuis que cette technique est en usage, le taux de mortalité élevé que l'on rencontrait chez ces enfants a été considérablement diminué. Douglas, avec 12 cas ainsi traités, rapporte un taux de mortalité nul qu'il compare avec un taux de 38 pour cent lorsque ces nouveaux-nés étaient traités par position en pronation seulement. Woolf et ses associés,[10] en 1960, publient une série de 25 cas dont vingt furent traités avec grand succès par cette méthode et les cinq autres moins sévèrement affectés furent placés en pronation seulement. Walker et Maloney[11] rapportent quatre cas traités d'une manière satisfaisante par adhésion et deux cas dont l'issue fut fatale par un manque de traitement adéquat à la suite d'un mauvais diagnostic. Enfin Kiskadden et Dietrich publient une série de 25 cas. Quinze furent traités d'une façon conservatrice avec un taux de mortalité de 35 pour cent, six par traction avec un fil de fer et les quatre autres par adhésion. L'avantage principal de la technique de Douglas sur celle du fil de fer, selon eux, réside dans une réduction importante de la durée du séjour hospitalier.

Il importe de considérer l'effet exercé

FIGURE 2 Résultat post-opératoire. L'adhésion de la langue à la lèvre est terminée. L'obstruction respiratoire est soulagée.

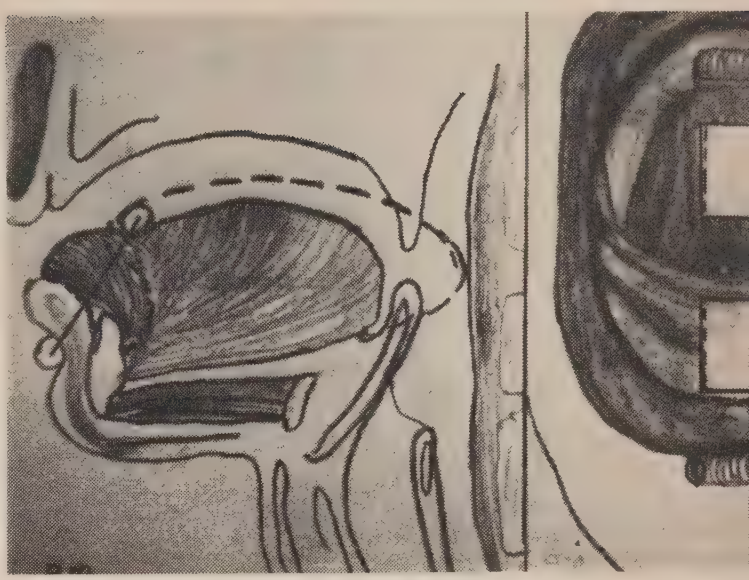

FIGURE 1 Technique de Douglas modifiée. Les deux surfaces dénudées de leur muqueuse sont accolées l'une contre l'autre et suturées.

par la traction sur la croissance de la mandibule. Précisons d'abord que Brodie[6] a démontré que la mandibule ne diffère pas des os longs en ce point et que une traction exercée sur un os ne stimule pas sa croissance. On sait que la mandibule croît à partir de centres de croissance bien définis. Pruzanski et ses associés[12,13] ont démontré que chez ces enfants le potentiel de croissance y est toujours présent et que dès que l'obstruction respiratoire est corrigée, la mâchoire inférieure reprend d'elle-même des dimensions normales. Cette condition diffère des cas d'atrésie ou d'ankylose congénitales. L'hypognathie est ici symétrique. Les condyles, les branches montantes et le corps de la mandibule présentent une image radiographique normale.

Voici une revue des six cas du syndrome de Pierre Robin rencontrés au Geisinger Medical Center de 1952 à 1962 et la façon dont ils furent traités. Chez deux de ces patients où l'obstruction était assez importante pour causer un état cyanotique continu, même en position de pronation, on employa la technique modifiée de Douglas avec des résultats très satisfaisants. Un autre de ces patients où la même méthode de traitement était envisagée, mais ajournée continuellement à cause de la condition

physique précaire du patient, éprouva subitement un arrêt complet de respiration et sombra dans un état semi-comateux. Il put être heureusement réanimé. L'obstruction respiratoire disparut éventuellement sans autre forme de traitement. Enfin les trois autres furent traités par la position de pronation seulement. L'obstruction, ici moins grave, fut ainsi contrôlée avantageusement.

Cette modeste contribution de six cas du syndrome de Pierre Robin confirme les résultats obtenus dans les autres études du même genre et amène à poser les mêmes conclusions à savoir:

—qu'il importe de reconnaître tôt le syndrome de Pierre Robin, pour éviter une issue fatale;

—que le traitement doit être dirigé en fonction du soulagement de l'obstruction des voies respiratoires d'une façon conservatrice pour les cas moins graves ou par chirurgie pour les autres;

—que la méthode chirurgicale de choix demeure encore celle de Douglas d'adhésion de la langue à la lèvre.

Avant de terminer, permettons-nous de placer quelques considérations personnelles.

Il a été souvent suggéré, comme cause possible de fissure palatine, la pression de la langue contre le palais au moment de la fusion. Il est intéressant de noter que dans notre série et selon une brève revue de la littérature sur ce sujet, aucun des cas de Pierre Robin avec fissure palatine ne présente également une fissure de la lèvre. Il nous serait alors permis, pour expliquer la fréquence des fissures palatines associées à ce syndrome, d'inclure comme facteur étiologique la langue amenée à faire pression contre le palais par une mandibule trop petite.

Peut-on aussi suggérer que la rétrogression de la langue ne joue quelquefois qu'un rôle partiel dans l'obstruction des voies respiratoires. Car il faut admettre que l'on rencontre des cas qui se corrigent d'eux-mêmes d'une façon très subite. Nous pourrions alors parler de retard chez ces nouveaux-nés dans le développement des structures nerveuses qui commandent le mécanisme complexe de la déglutition.

Summary

Pierre Robin syndrome is a congenital malformation resulting in micrognathism of the lower jaw, retrusion of the tongue and interference with normal breathing. This condition is often accompanied by palatal clefts. The mortality rate was high until recently when adequate treatment by oral surgeons was introduced.

The author has treated six cases of Pierre Robin syndrome. The surgical operation to counteract malposition of the tongue is described in detail.

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Geisinger Medical Center

page éditoriale

Recrutement des dentistes

On peut lire partout — dans des revues, dans les journaux, dans des rapports de comités d'organismes dentaires — que le nombre des dentistes va en diminuant par rapport à l'accroissement de la population et par rapport aux progrès réalisés dans l'éducation dentaire du public.

Toutes les statistiques qu'on aligne pour souligner ce phénomène social posent ainsi les données de ce problème: la population du Canada, grâce à l'immigration et au taux élevé de naissances au pays, s'accroît à un rythme considérable. En même temps que le nombre des citoyens augmente, leur standard économique s'améliore. Les Canadiens, à la faveur de l'amélioration de leurs revenus, s'éduquent davantage dans tous les domaines, y compris celui de la santé. Une équation s'établit donc qu'un plus grand nombre de personnes sollicitant plus de traitements taxe de plus en plus les disponibilités de la profession dentaire.

Il faut donc multiplier les effectifs de la profession dentaire, c'est sûr. Mais pourra-t-on jamais recruter un nombre suffisant de dentistes pour répondre aux demandes pour des services dentaires? Il faut en douter.

On a écrit dans un éditorial du *Journal de l'Association dentaire canadienne* (livraison de mai 1964) que le Canada aurait besoin de 450 nouveaux dentistes, chaque année, d'ici 1980, pour que la proportion des dentistes par rapport à la population s'établisse à 1 pour 2,500 (en 1963, 260 nouveaux dentistes ont terminé leurs études).

Que faire alors? La profession dentaire doit-elle abdiquer et confier le problème aux gouvernements, en avouant son incapacité à le régler? Non pas. Les dentistes ont encore assez de ressources et assez d'imagination pour palier à cette situation et prévenir une ingérence gouvernementale dans un domaine dont ils ont la responsabilité.

Amenons dans nos rangs le plus de candidats possible. Bâtissons, subventionnons, agrandissons nos écoles dentaires. Utilisons tous les media possible de propagande et de publicité pour retenir un grand nombre des meilleurs sujets, jeunes gens et jeunes filles, qui sortent de nos institutions secondaires. Ce travail doit être fait par les organismes officiels et par les dentistes eux-mêmes. Nous en sommes.

Mais, il faut aussi se demander s'il n'y aurait pas des façons d'accroître le rendement moyen des dentistes qui sont actuellement en exercice et de ceux qui y viendront plus tard jusqu'à ce que le nombre des dentistes soit suffisant pour prendre soin des demandes (utopie, disions-nous, plus haut).

Il y a certes des moyens de décupler le rendement du dentiste dans son cabinet. On en a parlé à plusieurs reprises, mais il est bon d'y revenir et d'en montrer quelques facettes nouvelles.

Exercice de groupe.—Les dentistes, de tradition, sont des professionnels qui pratiquent seuls. Mais, depuis la fin de la dernière guerre, ils ont tendance à s'as-

socier selon différentes formules, depuis l'union pour la simple division des frais fixes jusqu'à l'emploi ordinaire de dentistes par un autre. Il y a certains inconvénients à la pratique de groupe, mais il y a aussi des avantages tels qu'une meilleure utilisation d'espace, d'équipement et du personnel auxiliaire. Il y a aussi l'échange de connaissances et d'expérience qui est très précieuse pour un groupe de praticiens. Cette formule s'utilise avec profit chez d'autres professionnels.

Dédoublement des salles d'opération.— L'emploi de plus d'un fauteuil par un même dentiste lui permet d'augmenter son rendement. Une enquête menée récemment montre qu'en moyenne un dentiste travaillant avec une seule salle d'opération peut traiter, chaque année, 704 patients; un dentiste travaillant à deux fauteuils peut augmenter son rendement de 67 pour cent, c'est-à-dire qu'il peut soigner 1,174 patients, par année.

Délégation de pouvoirs à des auxiliaires. —Un dentiste peut accroître jusqu'à un certain point son rendement, s'il travaille assisté d'une auxiliaire. Il pourrait se réserver pour des fonctions essentielles et confier à des assistantes des tâches manuelles, sans conséquence. Avant toutefois d'autoriser des hygiénistes ou des infirmières dentaires à remplir des fonctions qui étaient jusqu'ici réservées aux dentistes, il faudrait étudier sérieusement la question pour se rendre compte comment servir les meilleurs intérêts du public et ceux de la profession et déterminer exactement quelle devrait être la formation de ce personnel auxiliaire.

Qu'on forme des comités de recrutement. C'est bien. Qu'on forme aussi des comités pour trouver des moyens de multiplier le rendement du dentiste. On fera face sur deux fronts au problème de la pénurie de dentistes.

G. de M.

résumés

ETUDE COMPARATIVE EN CLINIQUE DE TROIS DENTIFRICES

S. B. Finn et H. C. Jamison. J. Den. Children 30:17, 1963.

Les auteurs ont entrepris des recherches en comparant l'efficacité de trois dentifrices spécifiques dont deux sont sur le marché et un troisième dont l'évaluation en laboratoire semblait devoir donner de bons résultats en clinique. Ils publient dans cet article les résultats de deux années de recherches pour établir, en les comparant, la valeur des trois dentifrices.

Les dentifrices étaient les suivants:

1. Une pâte à dents à 0.76 pour cent de monofluorate de sodium mêlé à une base compatible de métaphosphate de sodium comme abrasif et un mélange de lauroyl sulfate de sodium et de lauroyl sarcocinate de sodium pour donner la saveur et le moussage désirés (pH, environ 5.5).

2. Une pâte à dents de 0.4 pour cent de fluorure d'étain mêlé à une base compatible de pyrophosphate de calcium, comme agent abrasif (pH, de 4.5-4.8).

3. Une pâte à dents de 2.0 pour cent de lauroyl sarcocinate de sodium mêlé à une

base compatible contenant du dihydrate phosphate de calcium, comme principal agent abrasif (pH, environ 7).

On a comparé pour cette étude deux dentifrices avec un troisième (la pâte à dents à fluor d'étain-pyrophosphate de calcium) qui avait une grande réputation pour inhiber la carie. Les sujets qui ont servi aux expériences furent 428 enfants, blancs et noirs, d'un pensionnat pour muets et aveugles.

Les résultats comparés montrent que le dentifrice qui contenait 0.76 pour cent de monofluorophosphate de sodium a permis environ 25 pour cent moins de faces df qu'un dentifrice contenant soit 0.4 pour cent de fluor d'étain avec du pyrophosphate de calcium, soit 2.0 pour cent de lauroyl sarcocinate de sodium avec du dihydrate phosphate dicalcium. L'emploi du dentifrice à base de fluorophosphate, selon des statistiques évidentes, réduit grandement l'incidence de la carie.

TEMPS DE SÉJOUR DU SUCRE DANS LA BOUCHE

G. F. Cox, F. F. Draus et Cheryl P. Entress. D. Progress 3:152, 1963.

On s'est servi de divers moyens pour montrer la présence de glucose dans la bouche: verres de papier, cure-dents en bois, sirop de maïs, bandelettes de papier enduites d'oxydase de glucose *(Tes-Tape)*, peroxydase et accepteur d'oxygène à couleurs changeantes (ortholidine).

Plusieurs groupes ont servi à l'expérience: chaque individu "promenait" dans sa bouche durant trente secondes une solution de 1:5 de sirop de maïs; ensuite, à toutes les trois minutes, on prélevait avec des cure-dents des échantillons de salive. Ce manège durait de 6 à 24 minutes.

Voici une méthode simple d'illustrer pour les enfants des motifs pour qu'ils se brossent les dents immédiatement après avoir mangé.

les actualités dentaires

L'Association

RÉUNIONS DE CONSEILS AU SECRÉTARIAT

Parmi les groupes de membres qui se sont réunis récemment au secrétariat de l'Association dentaire canadienne, à Toronto, il faut mentionner une Conférence sur l'enseignement de la pédodontie, l'assemblée régulière annuelle du conseil d'enseignement, la première réunion du nouveau comité consultatif spécial d'études sur les assurances commerciales et l'assemblée bi-annuelle du Conseil Exécutif. Toutes ces réunions ont eu lieu en février. Elles ont groupé des dentistes de toutes les parties du Canada et elles ont duré de 2 à 4 jours. Le comité des services dentaires hospitaliers et les fiduciaires des plans d'assurances de l'Association se sont réunis, le soir, au secrétariat. D'autres comités, notamment des comités de congrès, se sont assemblés dans différentes villes.

INSCRIPTION DES ÉTUDIANTS

Le conseil d'enseignement, à sa réunion de février, a sanctionné le rapport annuel sur le nombre des étudiants inscrits dans les facultés dentaires canadiennes. Voici quelques commentaires au sujet de ce rapport qui a paru au complet dans la livraison

d'avril du *Journal de l'Association dentaire canadienne.*

Le nombre total des étudiants inscrits dans les six facultés dentaires se chiffre à 1,177 (l'an dernier, 1,134), sur 1,179 places disponibles. Il y a 72 étudiants de plus en première année que chez les finissants. La proportion des femmes en rapport avec le total des étudiants se maintient autour de 4.6 pour cent. Il y a 167 étudiantes dans les quatre écoles d'hygiénistes dentaires (Dalhousie, Toronto, Manitoba et Alberta). Quatre-vingt-treize sont en première année (Manitoba n'a que des élèves de 1ière année) et soixante-quatorze sont en deuxième année. Les places disponibles sont toutes remplies, excepté une à Toronto et cinq en Alberta.

En 1963, 260 dentistes ont terminé leurs études (225, en 1962), à une moyenne d'âge de vingt-cinq ans.

Le coût moyen des frais de scolarité pour les quatre années du cours se chiffre à $4,122 ($3,878, en 1962-63). Le coût moyen des chambres et pension s'élève à $3,170 ($2,876) formant un total de $7,292 ($6,754).

ENQUÊTE EN COURS SUR L'EXERCICE DENTAIRE

Des centaines de dentistes ont déjà retourné les questionnaires que l'Association leur faisait parvenir, il y a quelques semaines. Ces formules ont été expédiées à chacun des membres de l'Association dentaire canadienne vers le milieu de mars. C'est la troisième enquête qu'entreprend l'Association, à des intervalles de cinq ans.

Les réponses des dentistes sont confidentielles et elles ne servent qu'à préparer des statistiques qui renseignent sur l'exercice dentaire en général.

Environ 40 pour cent des dentistes canadiens ont répondu au cours de l'enquête précédente qui a révélé des données intéressantes et importantes au sujet de l'exercice dentaire de 1958.

LA LIVRAISON DE MAI DU JOURNAL CONSACRÉE À LA DENTISTERIE OPÉRATOIRE

Dans un éditorial de la livraison de mai du *Journal de l'Association dentaire canadienne*, on déclare que le Canada aurait besoin de 450 nouveaux dentistes, chaque année d'ici 1980, pour que la proportion des dentistes par rapport à la population s'établisse à 1 pour 2,500. (En 1963, 260 nouveaux dentistes ont terminé leurs études). Mais, pour que le rendement de la profession soit considérablement augmenté, il ne suffira pas d'accroître le nombre des dentistes; ceux-ci devront scruter leurs techniques et déterminer des tâches qui pourraient être confiées à des personnes qui ont subi une formation moins poussée. Deux articles qui paraissaient dans la livraison de mai "Auxiliaries in operative dentistry," par C. W. B. McPhail, d'Edmonton, et "Operative dentistry: mechanical procedure or health service," par J. D. Purves, de Toronto, suggèrent des façons d'atteindre ces objectifs.

Un autre éditorial rappelle aux dentistes les dangers de trop diminuer inutilement et sans discernement les dents avec des fraises et des pierres actionnées par des turbines. G. A. Brass, de Winnipeg, dans un article abondamment illustré, "Problèmes fréquents créés par les progrès réalisés en dentisterie opératoire," traite de ces questions. Z. Kasloff, aussi de Winnipeg, passe en revue les améliorations amenées au cours de ces dernières années, l'effet sur les tissus et le maniement des matériaux utilisés en dentisterie opératoire. Un autre article contenant de nombreuses gravures, écrit par E. R. Ambrose, de Montréal, décrit phase par phase une technique de réhabilitation complète de la denture.

Cette livraison consacrée à la dentisterie opératoire est la troisième d'une série de livraisons spéciales publiées périodiquement par le *Journal de l'Association dentaire canadienne.* Les autres livraisons spéciales ont été consacrées à la pédodontie (février 1962) et à la périodontie (mai 1963).

NOUVEAU COMITÉ SUR L'ASSURANCE

Le Conseil Exécutif de l'Association dentaire canadienne a formé un comité spécial pour étudier les questions d'assurance commerciale. Les termes généraux du mandat de ce comité sont d'enquêter sur les programmes d'assurance patronisés par la profession dentaire; de faire des recommandations sur les avantages des polices offertes aux membres de la profession; de recommander des façons d'administrer les programmes d'assurance; et de retenir, quand nécessaire, les services d'experts. La première réunion de ce comité spécial a eu lieu au secrétariat de l'Association, les 13 et 14 février.

Le docteur M. V. J. Keenan, de Sudbury, président-sortant-de-charge de l'A.D.C., a agi comme président temporaire et les membres du comité se sont choisi un président parmi eux. Les cinq membres du comité sont les suivants: Donald C. Steeves, de Moncton; George Zimmerman, de Montréal; David C. Way, de London; Douglas C. McKechnie, d'Edmonton; et Orville F. Wright, de Vancouver.

Le Canada

LES RETRAITS INQUIÈTENT LES INGÉNIEURS

Les facultés de génie, de toutes les facultés universitaires, ont le pourcentage le plus élevé d'échecs ou d'abandon des études, selon un communiqué émis récemment par la division des recherches économiques du ministère fédéral du travail.

La moyenne des retraits dans les facultés de génie, entre 1945 et 1963, se fixe à 44 pour cent. Les dirigeants de ces facultés et les organismes professionnels d'ingénieurs s'inquiètent de ce taux élevé.

Dans les autres facultés, d'après la classe de 1959, les retraits s'établissent dans les proportions suivantes: arts et sciences, 41 pour cent; commerce, 32; droit, 29; agriculture, 25; génie forestier, 21; médecine, 10; chirurgie dentaire, 9. On énumère ainsi les raisons de ces échecs: mauvaise orientation, absence de motivation inspirée par les parents et les professeurs, lacunes dans les débouchés offerts par les curriculums et manque de moyens financiers.

LES DENTURISTES INAUGURENT UNE CAMPAGNE DE RECRUTEMENT

Tiré du *Winnipeg Free Press*, le 25 février 1964:

Clarence Phipps, président de la Société des denturistes d'Alberta, a déclaré à Winnipeg, lundi, que son organisme inaugurera cette année une campagne de recrutement dans les collèges de la province.

M. Phipps a déclaré, dans une entrevue, que la province d'Alberta a besoin d'un plus grand nombre de denturistes, car la loi leur permet de servir directement le public.

En Alberta, a dit M. Phipps, l'Université offre un cours de deux ans qui permet aux étudiants de devenir des mécaniciens dentaires certifiés. "A l'image des dentistes, a dit M. Phipps, on se propose de parcourir les collèges pour inciter les jeunes gens et les jeunes filles à s'inscrire au cours de technique dentaire à l'Université.

M. Phipps est à Winnipeg pour aider les denturistes du Manitoba dans leurs démarches pour obtenir le droit de confectionner des prothèses directement pour le public, sans l'intermédiaire des dentistes. La législature du Manitoba étudiera à la présente session un projet de loi proposé par Fred Groves (PC-St-Vital).

Les deux seules provinces canadiennes qui permettent aux denturistes de travailler directement pour le public sont l'Alberta et la Colombie britannique; la Saskatchewan, par ailleurs, permet aux denturistes de réparer des prothèses, sans passer par l'intermédiaire d'un dentiste.

Dans sa livraison du 27 février, la *Free Press* rapportait que le gouvernement confierait cette question à un comité spécial, au lieu de laisser la Chambre légiférer sur le sujet.

Une motion du gouvernement demandera de créer un comité spécial pour "faire des recherches, enquêter, s'informer, étudier et faire rapport sur la définition du rôle propre que doivent jouer les techniciens dentaires et les denturistes pour prodiguer des services dentaires qui soient de nature à servir les meilleurs intérêts du public et pour faire les recherches et formuler des recommandations qui soient convenables."

VIOLENTE POLÉMIQUE AU SUJET DE LA PROTHÈSE AU MANITOBA

L'article suivant intitulé "Battle for Dentures," écrit par John Dafoe, a paru dans le *Globe and Mail* de Toronto, le 25 janvier.

Winnipeg—Au début du mois, les journaux de Winnipeg ont publié une page d'annonce qui dénonçait "une loi désuète qui vous enlève votre liberté de choisir la façon de vous procurer vos dentiers."

Il y avait au bas de la page un coupon que les lecteurs pouvaient remplir pour dire s'ils avaient déjà retenu ou non les services de denturistes et s'ils avaient été satisfaits ou non de ces services. On y invitait les lecteurs à faire parvenir ces coupons au gouvernement provincial.

Pour décrire cette situation loufoque, reportons-nous à trente ans en arrière et imaginons quelle aurait été la réaction du public si des contrebandiers en boissons alcooliques lui avaient demandé de dire au gouvernement s'il avait ou non fréquenté des débits clandestins et s'il avait été satisfait ou non de leurs services.

Les denturistes, comme des contrebandiers, exercent illégalement une profession et, comme des contrebandiers, ils satisfont, en fraudant la loi d'une façon évidente, un appétit réel du public.

Cette réclame constitue une autre manche d'une lutte qui, depuis une vingtaine d'années, a des périodes actives et d'autres plus calmes. Cette bataille se fait plus intense depuis quelque temps et des projets de législation susceptibles d'établir un moyen terme dans cette question, lui donnent une nouvelle recrudescence.

D'un côté, on trouve les dentistes de la province, qui, en vertu des lois provinciales, ont le droit exclusif d'exercer la dentisterie, ce qui comprend la confection des prothèses. La Société des techniciens dentaires de Manitoba les seconde; ces techniciens sur ordonnances des dentistes, confectionnent des appareils de prothèse

De l'autre côté, l'Association des techniciens dentaires, les fabricants hors-la-loi de dentiers

ou les denturistes, qui, ouvertement et illégalement, ajustent, confectionnent et vendent des dentiers, en transigeant directement avec le public

La campagne des denturistes s'est accentuée depuis 1960, quand la législature provinciale a amendé la loi dentaire de façon à faciliter à l'Association dentaire de Manitoba, qui a charge de surveiller l'application de la loi, la tâche de poursuivre les délinquants.

En mai dernier, des détectives privés ont effectué des raids dans des laboratoires dentaires de la ville et y ont saisi des pièces d'équipement, des dossiers et de l'ameublement. Quelques techniciens ont été poursuivis en justice et condamnés pour avoir exercé illégalement la profession de dentiste. Ces jugements ont été portés en appel.

Le projet de loi qui doit agir comme tampon entre ces deux groupes sera présenté à la prochaine session; il accorde certains privilèges aux techniciens, mais aussi il rend les poursuites plus faciles.

Cette loi qui est présentée par la Société des techniciens dentaires — groupe de personnes qui travaillent en conformité avec les lois — permettrait aux techniciens de réparer les prothèses sans ordonnance de la part des dentistes.

Cependant elle exigerait que tous les techniciens soient enregistrés au sein d'un organisme qui élaborerait ses propres règlements. Cet organisme serait sans doute contrôlé par des techniciens honnêtes et non des denturistes.

Il se peut que le gouvernement soutienne cette loi, mais, s'il ne le faisait pas, il y aurait certes du grabuge à la Chambre. Une grande partie de la population sympathise avec les denturistes et le président de l'Association dentaire de Manitoba a admis, cette semaine, que ce conflit avec les denturistes a terni le prestige du dentiste. "On semble croire tout à coup que nous sommes des empêcheurs de danser en rond", a-t-il dit.

Chronique internationale

JOURNÉES DE L'ARPA SUISSE, À GENÈVE

Le congrès de l'ARPA suisse 1964 a été fixé aux 25 et 26 septembre prochain. Le thème principal sera "L'articulation mandibulo-temporale dans des rapports avec le parodonte et l'occlusion." Pour tous renseignements, s'adresser au secrétaire: Dr Righetti, Institut de médecine dentaire, 30 rue Lombard, Genève, Suisse.

CONGRÈS EN OCTOBRE, À PARIS

Le XIXe congrès français de stomatologie aura lieu à Paris, du 11 au 16 octobre 1965. Toute correspondance et adhésions doivent être adressées: XIX Congrès français de stomatologie, Hôpital de la Salpétrière, 47, Bd de l'Hôpital, Paris, 13e.

JOURNÉES DENTAIRES INTERNATIONALES DE PARIS

La seule manifestation scientifique française, dentaire, internationale et annuelle, a pris ces dernières années un développement que nul ne peut contester.

Cette année encore, ce Congrès tiendra ses assises à Paris du 23 au 29 novembre, à la Maison de la Chimie, 28 bis, rue Saint-Dominique, 7e.

Comme par le passé, le Comité d'organisation a prévu des séances d'une haute portée scientifique, assurées du concours de conférenciers tant français qu'étrangers.

Les libres propos, qui ont eu un si grand succès l'an passé, seront développés davantage et jumelés avec les tables-cliniques devenues classiques.

La télévision, désormais indispensable, aura sa place. Les traductions simultanées en quatre langues faciliteront les rapports et discussions avec nos confrères étrangers.

Une exposition de photographies pédagogiques permettra aux spécialistes de se manifester. Une vaste exposition de produits et matériel dentaires est prévue.

Quant aux festivités annexes à ce Congrès, elles restent réservées aux congressistes et particulièrement aux personnes accompagnantes. Elles auront pour but de faire connaître les joies et les beautés de la capitale française.

Le Comité d'organisation souhaite que ce Congrès soit empreint d'un esprit de cordialité, de jeunesse et d'action.

On recommande aux confrères désireux de présenter des communications, des tables-cliniques ou des films, de se faire connaître rapidement au Secrétaire général, 75 rue Blanche, Paris-9e.

Les Sociétés dentaires

CONGRÈS EN SASKATCHEWAN

Le congrès dentaire de 1964 en Saskatchewan a eu lieu à Saskatoon, les 4 et 5 avril. La Société dentaire de Saskatoon et du district s'est occupé de son organisation. Le docteur Richard Roydhouse, professeur à la nouvelle faculté dentaire de l'Université de Colombie britannique a présenté une conférence intitulée: "Concepts nouveaux au sujet des matériaux dentaires." Le Collège des chirurgiens dentistes de Saskatchewan a profité de cette occasion pour tenir une réunion générale.

Fluoration

LE CONSEIL DES RECHERCHES RÉPOND À DES CRITIQUES AU SUJET DE LA FLUORATION

Le conseil des recherches de l'A.D.C. a fait une déclaration qui réaffirme son approbation de la fluoration de l'eau et qui fait état de conclusions d'une communication présentée par des gens subventionnés par le Conseil national des recherches du Canada. Cette communication rédigée par trois personnes travaillant sous les auspices du CNRC avait été utilisée par John Lear, un rédacteur du *Saturday Review*, dans un article qu'il écrivait récemment pour appuyer son opposition à la fluoration de l'eau.

Des journaux avaient prétendu que le président du CNRC, M. G.B. Ballard, avait déclaré que le Conseil des recherches n'avait pas d'opinion au sujet de la fluoration. La communication de ces chercheurs, a déclaré M. Ballard, exprime des opinions toutes personnelles et elle n'a pas besoin d'être endossée par le CNRC. Il a de plus déclaré qu'il ne répliquerait pas à la déclaration de l'A.D.C. qui se lit comme suit:

> Le conseil des recherches de l'Association dentaire canadienne a considéré l'article "L'accumulation du fluor dans les os et ses conséquences", écrit par J.R. Marier, D. Rose et M. Boulet qui a été publié dans les *Archives of Environmental Health*, vol. 6:664, 1963.
>
> Cet article est une revue qui ne rapporte pas de recherches originales. Il avance certaines théories hypothétiques qui peuvent être interprétées comme contraires à la sûreté de la fluoration de l'eau.
>
> Toutes les preuves apportées dans cet article pour établir l'opinion des auteurs sont bien connues des chercheurs qui travaillent dans ce domaine. Plusieurs des références citées dans l'article rapportent des travaux qui traitent de concentration de fluor qui sont des centaines de fois plus élevées que celle utilisée dans l'eau de consommation, qui est d'une partie par million.
>
> Le conseil des recherches de l'Association dentaire canadienne est d'avis que cette communication n'offre aucune raison qui réfute les conclusions nettement scientifiques déclarant que la fluoration de l'eau est une mesure sûre et efficace pour prévenir partiellement la carie dentaire.

Les membres du conseil, avant de rédiger cette déclaration, ont tous lu attentivement l'article écrit par Marier et autres. Ils n'ont pu y trouver de nouvelles statistiques; l'article ne rapporte qu'une faible partie de la littérature traitant du métabolisme du fluor. Il n'y a rien dans les articles originaux cités par Marier et autres, ni dans leurs suggestions qui justifieraient un délai dans l'établissement de la fluoration comme mesure prophylactique de la carie dentaire.

Cet article du CNRC a fait l'objet de discussions à la Chambre des Communes. Le ministre de la santé nationale et du bien-être social, en réponse à une question, a déclaré:

> M. le président, le gouvernement ne se propose pas d'intervenir à ce stage-ci du débat. Cet article a été porté à mon attention, il y a quelques semaines, quand la population du Canada s'en est ému. Des fonctionnaires de mon ministère l'ont discuté avec des membres du Conseil des recherches. Nous ne croyons pas devoir prendre de décision à ce sujet.

LE GOUVERNEMENT FÉDÉRAL ENDOSSE-T-IL LA FLUORATION?

Le *Globe and Mail* de Toronto, dans sa livraison du 24 mars, publiait en première page une rubrique coiffée du titre ci-dessus. Cet article mentionnait que le gouvernement fédéral avait donné "son approbation sans limite à la fluoration de l'eau."

L'origine de cette nouvelle provenait d'une déclaration faite par le secrétaire parlementaire du ministre de la santé nationale et du bien-être social, en réponse à une question écrite du député (PC) de Springfield, le docteur Joseph Slogan, dentiste.

Cette réponse, telle que publiée dans la livraison du 23 mars du *Hansard*, est celle-ci:

> M. Munro: 1. Les dépenses occasionnées par des projets soumis par des provinces et endossées grâce à des octrois nationaux pour la santé pour des recherches sur les effets sur les dents de la fluoration de l'eau et des applications de fluor se chiffrent à environ $51,400.
>
> Quant au coût des recherches du ministère lui-même, il n'est pas possible d'en connaître la somme exacte, car le personnel de trois divisions et celui d'un directorat ont travaillé durant plus de 16 ans d'une façon intermittente sur l'effet de la fluoration et des applications de fluor en même temps qu'il travaillaient sur d'autres questions.
>
> 2. C'est un fait qu'ont établi des recherches prolongées que le dosage de la teneur de l'eau en fluor, de façon à ce qu'elle contienne une partie de fluor par million de parties d'eau, abaisse d'environ 60 pour cent l'incidence de la carie chez les enfants qui consomment de l'eau fluorée depuis leur naissance. On n'a pas noté d'effet nocif. L'amélioration de la santé dentaire des enfants, qui, demain, seront des adultes, assure une meilleure santé, car la santé dentaire fait partie intégrale de la santé en général.
>
> 3 et 4. Les activités du ministère de la santé nationale et du bien-être social en matière de fluoration se sont bornées, depuis leur début, à des recherches, à la publication de leurs résultats et à l'offre de renseignements et de conseils techniques. Le ministère n'a jamais fait de recommandations spécifiques susceptibles d'influencer des décisions au niveau politique.
>
> Cependant le public s'intéresse beaucoup à la fluoration de l'eau communale; on croit que la fluoration joue un rôle important dans l'équilibre total de la santé de la population du Canada. En novembre 1963, plus de 3,600,000 personnes, ou 20 pour cent de la population, dans 168 municipalités, buvaient

de l'eau à laquelle on ajoute du fluor à l'aide d'appareils mécaniques.

De plus, plusieurs milliers de citoyens, en plus du 20 pour cent qui boivent de l'eau dont la teneur en fluor a été fixée à une partie par million, consomment depuis toujours, depuis des générations, de l'eau qui contient du fluor et ce fluor lui vient de sources souterraines. On n'a pas noté chez ces gens d'effets nocifs.

ON CHERCHE À CHANGER LA MAJORITÉ DES DEUX TIERS

L'Association dentaire d'Alberta demandera au gouvernement provincial de modifier la loi au sujet de la fluoration de façon à ce que les referendums n'exigent qu'une simple majorité pour que cette mesure soit acceptée. Actuellement, la loi exige une majorité des deux tiers. Le *Journal* d'Edmonton, dans un éditorial, a prôné cet amendement.

DEUX AUTRES VILLES D'ALBERTA SANCTIONNENT LA FLUORATION

Deux autres villes d'Alberta ont approuvé, par référendum, la fluoration. La ville de Barrhead a voté en faveur de la fluoration à raison de 641-73, soit une majorité de 83 pour cent. A Mayerthorpe, les citoyens se sont prononcés pour dans une proportion de 85 pour cent, soit 73 contre 13.

On rapporte que l'Association dentaire d'Alberta fait des démarches pour faire amender le règlement qui exige que, pour être adoptée, la fluoration doit avoir une majorité des deux tiers des voteurs. Un éditorial du *Journal* d'Edmonton se prononce en faveur de ce changement par lequel il suffirait d'une majorité ordinaire.

> L'Alberta souffre d'une pénurie de dentistes . . . Plusieurs enfants souffrent de carie dentaire et d'autres formes de maladies de la bouche parce qu'ils ne boivent pas d'eau fluorée. Le gouvernement ne devrait pas se faire influencer par les quelques trimardeurs chez les médecins et les dentistes qui s'opposent à la fluoration.
>
> Un grand nombre d'hommes à l'esprit ouvert et au jugement serein ont étudié avec grand soin cette question de fluoration et ils ont déclaré que cette mesure est désirable dans un ordre de 100 pour cent. Le gouvernement d'Alberta causera un grave préjudice aux générations futures s'il persiste à exiger que la loi actuelle impose une majorité des deux tiers. . . . Cette question ne devrait pas être tranchée par un referendum. Cependant on peut créer un compromis en exigeant une simple majorité.

LA FLUORATION: BIENFAIT POUR LES GENS ÂGÉS

Tiré de l'*Ottawa Journal*, le 27 février 1964:

> Le nombre des fractures au cours de chutes, considérées comme l'apanage du vieil âge, peut être diminué d'une façon spectaculaire, comme la carie dentaire chez les enfants et de la même façon, grâce à l'alimentation — par la fluoration de l'eau.
>
> Cette prédiction fut faite récemment par le docteur Frederick J. Stare, professeur de nutrition et chef du département de nutrition de l'Ecole d'hygiène publique de l'Université d'Harvard. Il était à Ottawa l'invité de la Ligue de santé du Canada pour adresser la parole devant les membres du comité de la santé —députés et sénateurs—et devant le Conseil national des recherches.
>
> Le docteur Stare est une autorité en la matière, car il agit comme consultant au sein de plusieurs agences de santé bénévoles et du gouvernement, entr'autres l'American Heart Association, le U.S. Public Health Service et le Interdepartmental Committee on Nutrition for National Defence.
>
> La carie dentaire, a-t-il déclaré, est la maladie la plus répandue dans le genre humain. Elle aussi a rapport à l'alimentation. On peut réduire cette affection de 60 à 70 pour cent en contrôlant la teneur en fluor de l'eau des aqueducs. Cette mesure marque un des plus grands progrès en santé publique moderne.
>
> Des recherches entreprises sur la fluoration suggèrent qu'en plus de rendre les dents plus résistantes à la carie, le fluor peut rendre les os des vieillards plus résistants aux fractures et à la porosité.
>
> L'ostéoporose est une affection commune chez les vieillards. Elle est tellement fréquente chez les femmes après la ménopause qu'elle a donné naissance à une maladie appelée "L'ostéoporose post-ménopausienne."
>
> Le fluor est reconnu pour prévenir cette maladie. Les temps ne sont plus bien loin où on aura les preuves que les personnes âgées peuvent en tirer plus de profit que les enfants. Non seulement auront-elles de meilleures dents, mais elles auront des os mieux calcifiés, moins sujets à l'ostéoporose et qui seront moins susceptibles de se briser au cours des chutes.
>
> Le docteur Stare a dit que la fluoration n'est pas l'unique remède pour la carie dentaire. "Mais elle constitue le meilleur remède, dit-il, et elle abaisse le taux de la carie de 60 à 70 pour cent. Peut-être les enfants pourront-ils jouir d'un 10 pour cent additionnel grâce à une bonne hygiène et à une meilleure alimentation."
>
> Toutes les questions se rapportant à l'effet accumulatif du fluor ont été répondues sèchement: "La fluoration est sans danger—absolument sans danger!"

ON S'ATTEND QUE LA VILLE DE NEW YORK COMMENCE LA FLUORATION EN SEPTEMBRE

On s'attend à ce que la ville de New York, après dix ans de débats et de controverses acerbes, fluorure son eau en septembre prochain. Le conseil municipal et le service des estimations, le mois dernier, avec une grosse majorité, ont approuvé cette mesure. Le maire Robert Wagner a déclaré qu'il semble que "le poids incontestable des renseignements accumulés en faveur de la fluoration, dans le pays tout entier et dans la ville de New York elle-même, prouvent que cette mesure est sûre et efficace et

qu'elle est nécessaire. Je suis convaincu que les décisions que nous avons prises sont essentielles, car il n'y a pas d'autre alternative."

Seule Los Angeles, parmi les 12 plus grandes villes des Etats-Unis, n'a pas encore adopté la fluoration. Chicago, Philadelphie, Detroit, Baltimore, Houston (où on trouve le fluor à l'état naturel), Cleveland, Washington, St-Louis, San Francisco, Milwaukee, et maintenant New York, utilisent la fluoration. Au Canada, les grandes villes qui emploient cette mesure sont Halifax, Toronto, Windsor, Winnipeg et Saskatoon. Ottawa, la capitale du pays, tiendra un second référendum à la fin de l'année sur la fluoration.

Hygiène publique

NOUVEAU DIRECTEUR DENTAIRE POUR LE MANITOBA

Le docteur C. H. McCormick a été nommé directeur des services dentaires du Ministère de la santé de la province de Manitoba. Il était, depuis 1957, directeur du service de santé dentaire de la ville de Winnipeg. Il a remplacé le docteur R. A. Connor qui a laissé récemment ce poste pour accepter une fonction analogue au Ministère de la santé nationale et du bien-être social, à Ottawa.

Le docteur McCormick a terminé ses études dentaires en Alberta après avoir obtenu un baccalauréat es arts de l'Université de Saskatchewan à la fin de la guerre dans laquelle il avait servi comme sergent-assistant dentaire avec le corps dentaire. Il obtint son diplôme en hygiène publique de l'Université de Toronto avant d'être nommé à Winnipeg.

ELOGE DES PROTECTEURS DE DENTS

Un dirigeant de l'Association dentaire américaine a prédit que les protecteurs de dents préviendront presque complètement les blessures causées aux dents des joueurs de football. M. Perry J. Sandell, le directeur du Bureau de l'éducation dentaire de l'A.D.A., a déclaré que les jours du traditionnel "sourire sans dents" des joueurs de football sont comptés. A la suite d'une enquête, on a constaté une réduction considérable des blessures à la bouche des joueurs depuis que ce comité des règlements du National Alliance Football a rendu obligatoire le port d'un protecteur pour la bouche. Les étudiants, les entraîneurs et les dentistes se sont tous déclarés en faveur de cette mesure. Quelques sociétés dentaires du Canada ont collaboré activement à la mise en œuvre de programmes pour promouvoir l'usage de protecteurs de la bouche pour les sports violents.

Le corps dentaire royal canadien

VISITES ET VOYAGES OFFICIELS

Le brigadier K.M. Baird, directeur général des Services dentaires pour les forces armées du Canada, accompagné du colonel I.A.L. Millar, sous-directeur général de ce même Service, s'est rendu à Camp Borden le 19 février dernier en vue de conférer avec le personnel de l'Ecole du Corps dentaire et d'accorder des entrevues aux candidats qui y suivent des cours.

Le lieutenant-colonel G.C. Evans a été le représentant du Corps dentaire à la conférence de la Direction de l'instruction militaire qui a eu lieu à Camp Borden du 18 au 20 février.

COURS À L'INTENTION DES OFFICIERS

Les officiers dont les noms apparaissent ci-dessous ont suivi le cours portant sur le soin des blessés, donné à l'Ecole du Corps dentaire du Camp Borden du 17 au 21 février: le major A.G. Andrews d'Ottawa, le major W.H. Carter d'Ottawa, le major A.T. Hinch de la Base de l'A.R.C. à Cold-Lake, le major L.E. Kelly de la Base de l'A.R.C. à Comox, le major H.E. McKenna de Montréal, le major C.J. Sivell d'Edmonton et le capitaine K.C. Chisholm de la 61e Unité dentaire (Milice) de Vancouver. A l'exception du capitaine Chisholm, tous ces officiers ont suivi le cours portant sur les soins cliniques, donné à l'intention des officiers du 24 février au 20 mars.

RÉUNIONS PROFESSIONNELLES

Le 24 janvier dernier, les officiers dentistes de la Base de l'A.R.C. à Trenton ont accueilli la Société dentaire de la baie de Quinte, qui a tenu sa réunion d'hiver au mess des officiers de la base. Les 25 membres qui ont assisté à cette réunion ont pris part, entre autres, à une discussion portant sur les assurances collectives, discussion que dirigeait M. W.E. Jackson du Royal College of Dental Surgeons of Ontario. Le lieutenant-colonel C.M. Cornish a présenté un travail traitant de l'emploi des technothérapeutes dentaires dans le Corps dentaire, puis on a montré un film portant sur la chirurgie buccale.

Trois officiers de la 4e Compagnie dentaire de campagne, le major D.J. MacPhee, le capitaine W.R. Collier et le capitaine J.F. Eadon, ont présenté des travaux à la réunion de dentistes tenue à Forth-Chambly (Allemagne) le 30 janvier. On remarquait à cette réunion, en plus des officiers dentistes canadiens, un certain nombre de dentistes britanniques et américains.

CHIRURGIENS DENTISTES HONORAIRES DE LA REINE

Sa Majesté la reine Elizabeth II a gracieusement approuvé la nomination du colonel I. A. L. Millar, C.D., D.D.S., Q.H.D.S., sous-directeur général des Services dentaires, et du colonel C. E. Woods, C.D., D.D.S., Q.H.D.S., directeur adjoint des Services dentaires (Milice), Région militaire du Centre, au poste de chirurgien dentiste honoraire de la Reine.

Il s'agit d'un honneur accordé à des dentistes choisis en reconnaissance de leurs services distingués; dans le cas des officiers de l'Armée régulière, la nomination est pour la "durée des fonctions" et dans celui des officiers de la Milice, pour une période de deux ans. Les quatre postes disponibles sont ordinairement attribués aussi bien à des officiers des forces régulières qu'à ceux de la Milice.

Le colonel Millar est né à Matapédia (P.Qué.) en mars 1913 et il a étudié la chirurgie dentaire à l'Université Dalhousie, où il a reçu son diplôme en 1938. Après avoir exercé sa profession à Liverpool (N.-E.), il s'enrôle dans le Corps dentaire au grade de lieutenant en décembre 1939. Promu capitaine au mois de mars suivant, il est envoyé au Royaume-Uni en septembre 1941. Il prend part aux débarquements du jour "J," le 6 juin 1944, alors qu'il se trouve affecté à la 14e Ambulance de campagne canadienne en qualité de dentiste. Il obtient le grade de major en juillet 1943. A son retour au Canada, en septembre 1945, le colonel Millar est envoyé à Halifax (N.-E.), où il s'enrôle dans l'Armée régulière. Il sert dans l'Est du Canada jusqu'en mars 1947, date à laquelle il est affecté au Naden, à Esquimalt (C.-B.).

Voici quelques-uns des postes que le colonel Millar a occupés: instructeur à l'Ecole du Corps dentaire, d'août 1949 à avril 1951; directeur adjoint des Services dentaires, d'avril 1951 à novembre 1951; principal spécialiste à la 13e Compagnie dentaire, de novembre 1951 à janvier 1953; commandant de la 27e Unité dentaire de campagne, de janvier 1953 à janvier 1954; commandant de l'Ecole du Corps dentaire, de juillet 1954 à avril 1957; commandant des Services dentaires pour la Région militaire de l'Ouest, de juillet 1957 à juillet 1961; enfin directeur des Services dentaires (Marine), de juillet 1961 à juin 1963.

Promu au grade de lieutenant-colonel en novembre 1951 et à celui de colonel en septembre 1957, le colonel Millar a assumé son poste actuel de sous-directeur général des Services dentaires en juin 1963.

Le colonel Woods est né à Ottawa en septembre 1913. En 1942, l'Université de Toronto lui décerne un doctorat en chirurgie dentaire et il s'enrôle au Corps dentaire avec le grade de lieutenant. Il est promu capitaine en mars 1943 et, l'année suivante, il se rend outre-mer en qualité de dentiste militaire avec le 4e Hôpital général du Corps de santé canadien. Pendant son séjour outremer, le colonel Woods sert au Royaume-Uni et en Europe continentale. Il revient au Canada en décembre 1945 et il est libéré de l'Active en février 1946.

Passé à la Milice en mars 1949, le colonel Woods est affecté à la 7e Compagnie dentaire (maintenant la 54e Unité dentaire) à Ottawa avec le grade de capitaine. Promu major en octobre 1950, il est nommé commandant en second de la 54e Unité dentaire en décembre 1953 et il en devient commandant en janvier 1956 avec le grade de lieutenant-colonel. En décembre 1959, le colonel Woods abandonne le commandement de l'unité et passe à la Réserve supplémentaire. Lors de sa nomination au poste de sous-directeur adjoint du Comité consultatif des Services dentaires en septembre 1960, il passe de nouveau à la Réserve. Il est promu colonel en septembre 1962, alors qu'il devient directeur adjoint des Services dentaires de la Région militaire du Centre, poste qu'il occupe actuellement.

AFFECTATIONS

On annonce cet été les nouvelles affectations des officiers suivants:

Le colonel G. R. Covey, directeur des

Services dentaires (Marine) à la Direction des Services dentaires, a été nommé commandant de l'Ecole du Corps dentaire, au Camp Borden, en remplacement du colonel C. E. Purdy.

Le colonel A. C. Leman, commandant de la 13e Compagnie dentaire, à Trenton, a été affecté à la Direction, à titre de directeur des Services dentaires (Aviation).

Le colonel A. T. Roger quitte le commandement de la 12e Compagnie dentaire, à Halifax et devient commandant de la 13e Compagnie dentaire, à Trenton.

Le lt-col. C. M. Cornish, clinicien principal à la Clinique du Quartier-Général de l'Aviation, à Ottawa, depuis deux ans, a été affecté à la Base aérienne de Trenton, à titre de clinicien principal.

Le lt-col. G. C. Evans, qui commandait la 4e Compagnie dentaire de campagne, en Allemagne, a été affecté au quartier-général de l'Armée, à Ottawa, en qualité de sous-directeur des Services dentaires.

Le lt-col. G. MacDougall, clinicien principal au "Naden," s'est rendu en Allemagne pour y prendre le commandement de la 4e Compagnie dentaire de campagne.

Le lt-col. J. W. Turner, qui a passé deux ans à la U.S. Naval Dental School de Bethesda (Maryland), en vertu d'un programme d'échange, revient à l'Ecole du Corps dentaire, au Camp Borden, où il a été nommé instructeur en chef.

Le major W. H. Carter, qui était à la Base aérienne de Cold Lake (Alb.), a été affecté à la Clinique du Quartier-Général de l'Aviation, à Ottawa.

Le major T. D. Cobb, qui se trouvait à la caserne Griesbach, à Edmonton, a été envoyé au Camp de Gagetown (N.-B.).

Le major J. L. Craig, qui était à la Clinique du Quartier-Général de l'Aviation, à Ottawa, a été affecté à la 35e Unité dentaire de campagne.

Le major J. I. Gordon, qui était à la Base aérienne de Saint-Hubert, se rend à la Base aérienne de North Bay.

Le major W. H. Harrington passe de la 35e Unité dentaire de campagne, au 6e Dépôt du personnel (liste de retenue), à Toronto.

Le major A. T. Hinch, qui était affecté à la 35e Unité dentaire de campagne, passe à la Base aérienne de Cold Lake (Alb.).

Le major A. L. Kelland, de l'Unité de base des forces canadiennes au Moyen-Orient, passe à l'Ecole du Corps dentaire.

Le major L. E. Kelly, de la 4e Compagnie dentaire de campagne, est affecté à la Base aérienne de Comox (C.-B.).

Le major J.-A. Lauzière, de la caserne Fort Osborne, à Winnipeg, passe à la Base aérienne d'Uplands (Ont.).

Le major D. E. McDermott, du Camp de Gagetown (N.-B.), passe à la 35e Unité dentaire de campagne.

Le major R. J. Pyne, de la Base aérienne de Comox (C.-B.), est affecté à l'Unité de base des forces canadiennes au Moyen-Orient.

Le major M. P. Quinn, du Quartier-Général du Secteur militaire de la Colombie britannique, à Vancouver, est affecté au "Bonaventure."

Le major C. J. Sivell, de la 35e Unité dentaire de campagne, passe à la caserne Griesbach à Edmonton.

Le major J. J. N. Wright, de l'Ecole du Corps dentaire, passe à la Base aérienne de Clinton (Ont.).

Le cap. N. H. Andrews, de la Base aérienne de Winnipeg, passe à Portage-la-Prairie.

Le cap. J.-O.-L. Bourget, de l'Unité de base des forces canadiennes au Moyen-Orient, est affecté à la 35e Unité dentaire de campagne.

Le cap. M. D. G. Conrad, de l'Unité de base des forces canadiennes au Moyen-Orient, est affecté au "Stadacona."

Le cap. J. L. Y. Cyrene, du Collège militaire royal de Kingston, est affecté à l'Unité de base des forces canadiennes au Moyen-Orient.

Le cap. P. A. Dailyde, de la caserne Griesbach à Edmonton, passe au "Cap Breton."

Le cap. J. F. Eadon, de la Base aérienne de Penhold (Alb.), est affecté à la 4e Compagnie dentaire de campagne.

Le cap. W. J. Froese, de Fort Churchill, passe au Camp de Petawawa (Ont.).

Le cap. B.-A. Gaudet, du 3e Détachement du Corps de santé, à Québec, est affecté au Quartier-Général du Secteur militaire de la Colombie britannique, à Vancouver.

Le cap. J.-H. Marion, du Camp Valcartier, passe à la 35e Unité dentaire de campagne.

Le cap. N. A. McFarlane, du "Cornwallis," est affecté à la Base aérienne de Cold Lake (Alb.).

Le cap. R.-J. Paturel, de l'Ecole du Génie, à Vedder Crossing (C.-B.), est affecté à l'Unité de base des forces canadiennes au Moyen-Orient.

Le cap. L. A. Reynolds, de la Base aérienne de North Bay, passe à la 4e Compagnie dentaire de campagne.

Le cap. J. B. Wilcock, de la Base aérienne de Namao (C.-B.), passe à celle de Vancouver.

CONFÉRENCE DU CORPS DENTAIRE

Les commandants de huit unités des forces régulières du Corps dentaire royal canadien se sont réunis à Ottawa, du 25 au 27 novem-

bre 1963, en vue d'assister à la 14e Conférence annuelle du Directeur général et des commandants d'unités des services dentaires, qui a eu lieu sous la direction du brigadier K. M. Baird, directeur général des services dentaires des forces armées du Canada.

Après l'allocution d'ouverture prononcée par l'adjudant général de l'Armée canadienne, le major-général W. A. B. Anderson, des officiers de la Direction présentèrent de nombreuses communications qui servirent de bases à des discussions sur des sujets d'ordre général intéressant l'assemblée. Le colonel I. A. L. Millar, directeur général adjoint des services dentaires, agissait comme président de ces délibérations officielles. Les officiers visiteurs se sont entretenus ensuite individuellement avec le personnel de la Direction sur des sujets se rapportant à leurs unités respectives.

Les officiers ci-après étaient présents: le colonel B. P. Kearney, de la 11e Compagnie dentaire, à Edmonton; le colonel A. T. Roger, de la 13e Compagnie dentaire, à Trenton; le colonel G. R. Covey, de l'Ecole du Corps dentaire, au Camp Borden; le colonel R. H. G. Cunningham, de la 12e Compagnie dentaire, à Halifax; le lt-col. R. B. Jackson, de la 14e Compagnie dentaire, à Winnipeg; le lt-col. J. G. Butler, de la 15e Compagnie dentaire, à Montréal; le lt-col. L. G. Craigie, de la 35e Unité dentaire de campagne, en Europe et le major J. W. Fletcher, du 1er Dépôt de matériel dentaire, à Petawawa.

Le 26 novembre, ceux qui assistaient à la conférence, ainsi que les officiers anciens et actuels du Corps dentaire (Forces régulières et Milice) furent invités à un dîner dansant au mess des officiers du Quartier général de l'Armée.

COURS DE FORMATION PROFESSIONNELLE

Conformément à la ligne de conduite du Corps visant à encourager ses membres à perfectionner leur instruction, les officiers dentistes ci-après ont récemment suivi les cours de récapitulation suivants, aux endroits mentionnés ci-dessous:

Ent. Air Force Base, Colorado Springs, Colorado: le lt-col. L. R. Pierce, chirurgie buccale, du 12 au 22 novembre 1963.

University of Michigan, Ann Arbor, Michigan: le major H. G. Bunston, chirurgie buccale, du 2 au 13 décembre 1963; le major A. L. Kelland, cours spécial en chirurgie dentaire, du 4 au 15 novembre 1963; le major P. S. Sills, prothèse complète, du 6 au 17 janvier 1964.

U. S. Naval Dental School, Bethesda, Maryland: le major J. W. Jolly, couronnes et ponts, du 14 octobre au 29 novembre 1963; le major J. M. Smith, maladies péridentaires, du 29 octobre au 13 décembre 1963; le major G.-I.-J. Bisaillon, chirurgie buccale, du 6 au 10 janvier 1964; le major I. A. C. MacDonald, chirurgie buccale, du 6 janvier au 21 février 1964; le capitaine J.-R.-A. Vincent, prothèse partielle, du 13 au 17 janvier 1964.

Royal College of Dental Surgeons, Londres, Angleterre; les majors D. J. MacPhee et J. J. N. Wright, chirurgie dentaire et buccale, du 21 octobre au 13 décembre 1963.

OFFICIERS À LA RETRAITE

Ayant terminé leur période de service à court terme, les officiers ci-après sont retournés à la vie civile: le capitaine R. D. H. Bunt, de Trenton (Ont.); le capitaine M. D. G. Conrad, de Dartmouth (N.-E.); le capitaine J.-P. Houle, de Drummondville (Qué.); et le capitaine R. Lanthier, d'Ottawa (Ont.).

RÉUNION À CHICAGO

Le lt-col. G. C. Evans a assisté, à titre de représentant officiel du Corps dentaire royal canadien, à la réunion que la Chicago Dental Society tient habituellement au milieu de l'hiver; cette année, la réunion a eu lieu du 2 au 5 février.

LE LT-COL. THOMPSON AU CONGRÈS DE CHIRURGIE ESTHÉTIQUE

Le lt-col. W. R. Thompson, instructeur de chirurgie buccale à l'Ecole du Corps dentaire à Camp Borden, s'est rendu à Washington, où il est resté du 13 au 18 octobre, pour participer au troisième Congrès international de chirurgie esthétique. Le lt-col. Thompson a également pris part aux séances d'étude de la technique des frottis cytologiques tenues à l'Université de Montréal le 3 décembre dernier.

CHANGEMENTS DE POSTE

Deux officiers viennent de changer de poste: le capitaine P. R. McQueen a été affecté au Centre interarmes d'entraînement aérien de Rivers (Manitoba), pour y remplacer le capitaine J.-M.-L. Rochefort, qui occupe maintenant le poste confié jusque là au capitaine McQueen au quartier général du camp de Valcartier (P. Qué.).

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Methods for achieving improved amalgam restorations

G. H. Gibb, D.D.S., Edmonton, Alberta*

A recent survey of one hundred random patients who attended the dental clinic of the University of Alberta revealed that no less than 44 per cent of all amalgam restorations in the teeth of these patients required replacement due to tooth and filling fracture, faulty margins, recurrent decay and improper contact area. The radiographs (Figures 1 and 2) of another patient who attended the university clinic just two months after having been declared "dentally fit" by her dentist constitute an equally severe indictment of the services rendered. Her complaint—"trench mouth"—was obviously associated with the overhanging margins, poor contours, excessive cement bases, broken fillings, and decay under the fillings and around margins. This is an extreme case but there are far too many examples of this kind of improper treatment.

Examination, Diagnosis and Consultation.—I have the opportunity to chat with many dentists about their restorative procedures. I find that a common fault with many concerns inadequate diagnosis and

Presented at the Western Canada Dental Society convention, Winnipeg, June 10, 1963.
*Associate professor and chairman, Department of Restorative Dentistry, University of Alberta, Edmonton.

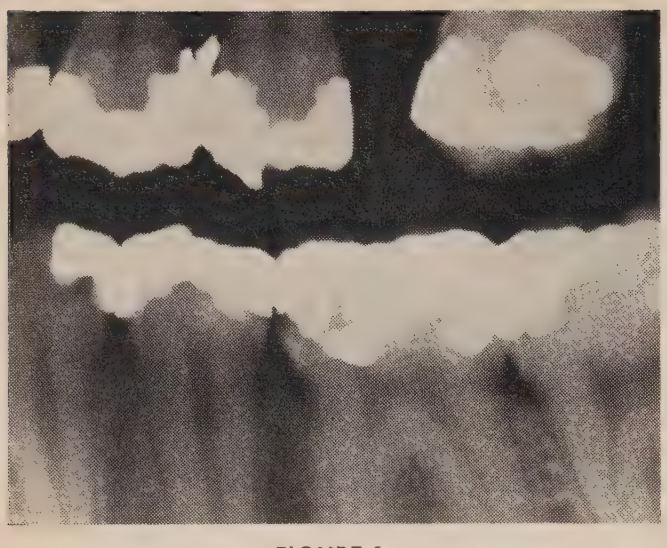

FIGURE 1

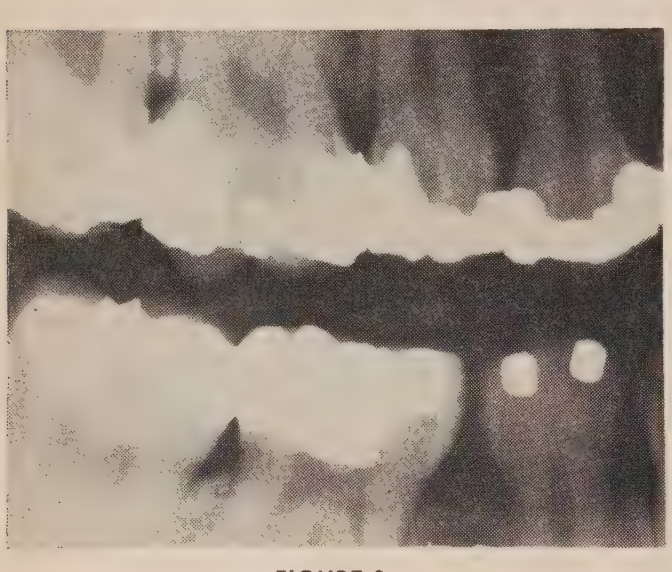

FIGURE 2

lack of consultation with the patient. They fail to make a proper diagnosis because of insufficient clinical and radiographic examination. Every patient should have the benefit of (a) a thorough clinical examination with full mouth radiographic survey, using additional diagnostic aids as and when required, and (b) a consultation where the dentist explains the patient's needs, interprets the proposed treatment plan, and both parties conclude financial arrangements. It is necessary to reserve for each patient sufficient time to provide the needed service and to do it well. Above all, one must avoid the temptation to rationalize a less than adequate type of service.[1]

Rubber Dam—If I had to give up either the rubber dam or the air turbine as an aid to cavity preparation, I would give up the latter. As a device for maintaining a clear uncontaminated operative field the rubber dam is unexcelled.

The most popular materials for placing the dam include:

1. Heavy or extra heavy dark dam. This dam does not tear as easily as lighter dam. It pulls the gingival tissue back more forcefully and gives a good colour contrast for better field of vision.

2. A good rubber dam mask or pad. Some prefer cutting their own pads from a standard white flannelette material (Figure 3).

3. A good rubber dam punch and clamp forceps.

4. Selected clamps. The following are suggested as a basic kit: SSW18, 22, 26, 30, 31, and 212; also Ivory 12, 12A, 14, and 14A.

5. A good saliva ejector. The adjustable Kumfort-Tyme ejector is often preferred. Always insert the ejector through a hole cut in the dam rather than placing it under the dam. If it is placed under the dam it will be forced into the sublingual tissues and may cause soreness.

6. A rubber dam holder. The Clev-dent Wizard and the Woodbury holder are very good. The Wizard holder, if used, will work better if the elastic head-band is replaced with a wider ¾ inch elastic.

7. A shaving cream to be used as a lubricant.

8. Dental floss.

The rubber dam properly placed gives an adequate, dry, clean operating area (Figure 4).

Cavity Preparation. — A recent study by Healey and Phillips[2] indicated that 56 per cent of amalgam failures were due to cavity preparation. There are three common errors in cavity preparation: (1) inadequate extension for prevention, (2) excessive outward flare of buccal and lingual walls, and (3) lack of retention form. In class 2 cavities I frequently see recurrent decay at the linguo-gingival and bucco-gingival line angles, and on the occlusal surface where the cavity has not

FIGURE 3

FIGURE 4

been extended to the full length of a deep groove. This may be due to carelessness.

What causes recurrent decay at the bucco-gingival and linguo-gingival line angles? Poor hygiene can be an important contributing cause, but two other factors are involved, and both can be controlled by the dentist. They are: (a) lack of extension gingivally—the bucco-gingival and the linguo-gingival angles should be beneath the free margin of the gingiva and (b) improper condensation of amalgam into the gingival angles.

I prefer to follow Black's rules for prevention by extending the proximal walls buccally and lingually until the margin of the cavity is well into a self-cleansing area and can be finished and polished with a disk. This also enables the dentist to see if there has been adequate condensation of amalgam in the gingival angles. Some dentists advocate extending as little as possible in these areas to prevent breakage of cusps.[3] I have noted hundreds of teeth with recurrent decay due to lack of extension for every broken cusp due to overextension.

When extending the cavity proximally, the buccal and lingual walls are often flared too much. The margins of the buccal and lingual proximal walls should meet the surface of the tooth at right angles or as close to 90 degrees as possible. This prevents fracture of both the tooth and amalgam margins (Figure 5). Such a cavity margin is achieved by forming a reverse curve (from the occlusal view) as you approach the proximal area.[4] Figure 6 shows this reverse curve of the amalgam preparation as compared to the outline of an inlay preparation.

The walls must be smooth to permit adequate adaptation of the amalgam to the cavity walls.[5] You cannot use a No. 556 bur in the air turbine handpiece and get a smooth finished wall. Sharp hatchets or chisels, along with a sharpener, are mandatory. Also to be recommended is a pair of binocular loupes. If you do not operate all the time with loupes, at least take a good look at your finished cavity with them.

The third and greatest fault I find with cavity preparation is lack of retention form. Many dentists use no retentive grooves in the proximal walls of their class 2 cavities. These grooves should be placed in bucco-axial and linguo-axial line angles in dentine (Figure 7) at the expense of the buccal and lingual walls. Do not undermine the enamel on the proximal margins. A No. 700 bur is too large in most cavities. A No. 699 is usually the bur of choice. However, many prefer hand cutting instruments to make retentive grooves. With good retentive walls gingivo-occlusally on both the proximal and occlusal portions of the cavity there will be sufficient retention form.

When restoring the distal portion of the lower first molar it is wise to shoe the distal buccal cusp (Figure 8). Do not be afraid to shoe any cusp that is undermined. For cavities that have to be extended beyond the axial angles of the tooth, retention of the amalgam restoration is accomplished by the use of stainless steel pins. These pins reinforce amalgam just as steel rods reinforce concrete. Markley has described pin retained and reinforced amalgam.[6]

Cavity Liners. — Schwartz and Phillips have shown that there is less leakage with amalgam restorations if a cavity varnish is used.[7] There is also less penetration of acid from a zinc oxyphosphate cement.

FIGURE 5

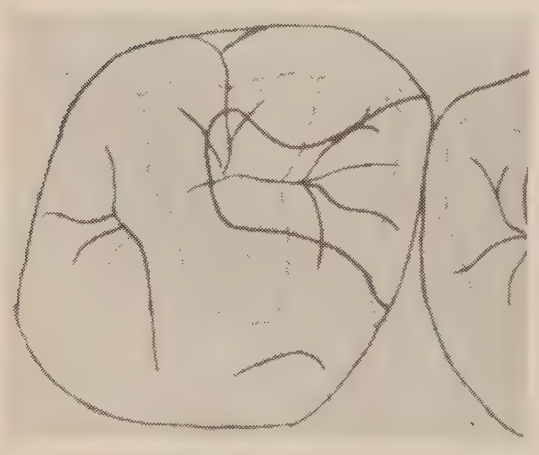

FIGURE 6

In all deep cavities I use a calcium hydroxide base, cover the walls with varnish, and then place a zinc oxyphosphate base. The base (1) prevents transmission of mechanical pressure via the dentine into the pulp while condensing the alloy, and (2) acts as a thermal insulator. The former, I believe, is of far more importance than the latter.[6] I use cement bases only in very deep cavities; but I use cavity varnish under every amalgam restoration.

Matrices. — The type of matrix used is immaterial as long as it can be properly contoured, properly wedged, and closely adapted to the proximal margins of the cavity.

It is preferable to use a custom made matrix of thin hard matrix steel. This is wedged with a piece of tongue blade, shaped in a "V" to fit the interproximal embrasure. Most manufactured wedges are not of the proper shape, and a "Stimudent" interdental wood point is useless.

The matrix is cut, fitted and shaped to the tooth and then burnished with an egg shaped or oval burnisher or contoured with contouring pliers. It is then placed in position and wedged. Wetting the wedge before placing it will help to keep it in position.

After wedging the matrix is secured buccally and lingually with small cones of softened compound. Additional stability may be obtained by heating the tips of a No. 1 Ivory matrix retainer and pushing them into the compound on each side of the tooth. Above all, the matrix must be properly contoured, wedged and adapted to the cavity margins.

The wedge serves two purposes: (1) it holds the matrix tightly against the tooth at the gingival margin, thus preventing improper contour and overhang as seen in Figure 9, and (2) it gives sufficient separation to allow for tight contact between the teeth when the matrix is removed.

The "most important dimension," as referred to by Hollenback,[8] is the mesiodistal dimension. A properly fitted mat-

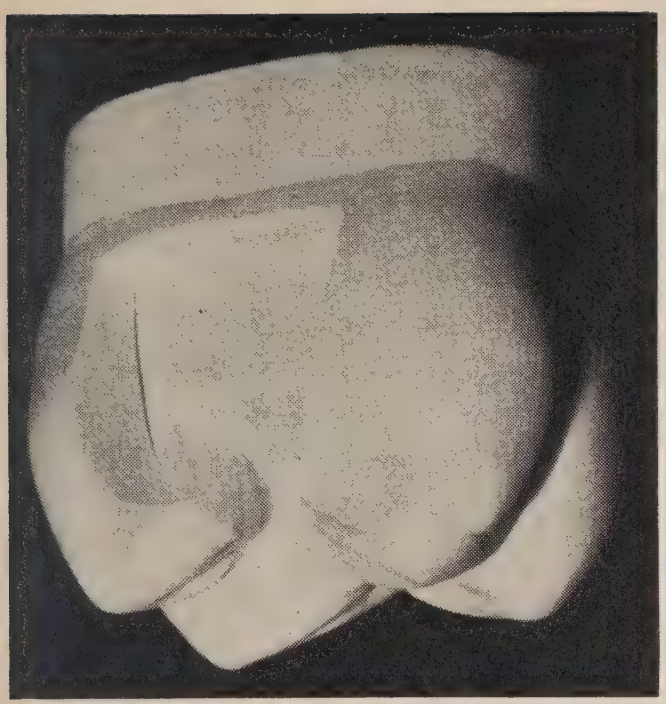

FIGURE 7

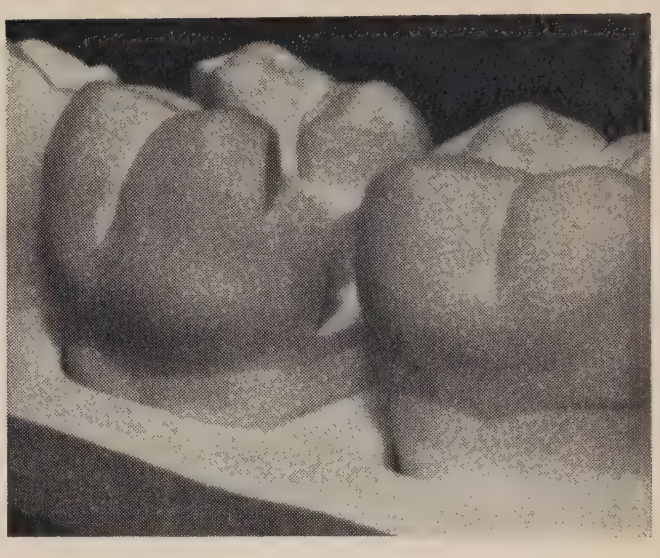

FIGURE 8

rix is essential for restoring this dimension.

Amalgam. — The study by Healey and Phillips[3] previously referred to also revealed that 40 per cent of amalgam failures were due to improper handling of the material itself. Consequently, 96 per cent (poor cavity preparation 56 per cent, mishandling of amalgam 40 per cent) of amalgam failures are directly attributable to the dentist.

Amalgam handling can be considered in three steps:

1. Mixing.—Good restorations have less than 50:50 ratio of mercury to amalgam.[9] The best way to get this ratio is by mixing a 50:50 proportion to start with.[10]

Overexpansion of amalgam results in pressures on the pulp and defective margins. Two main causes of overexpansion are (a) insufficient trituration and condensation of the amalgam, and (b) contamination of the amalgam during mixing and condensing. Most dentists do not triturate their amalgam for a sufficient length of time. They often fail to read and follow the directions given by the manufacturer. There is little, if any, danger of overtrituration.[11]

Amalgam should never be permitted to touch the hands; amalgam should never be contaminated with blood or saliva during insertion and condensation.[12,13] There is no excuse for placing an amalgam restoration without the rubber dam in place.

2. Condensing.—Condensing is best accomplished with medium sized condensers that will properly condense into all areas. Small diamond shaped pluggers may be used to advantage in the proximal portion of a class 2 cavity. Use sufficient pressure to pack the small alloy particles tightly together and to express any excess mercury. This increases strength and decreases flow.[11] Lateral pressures should be used against the buccal and lingual walls to get the best adaptation of amalgam to these walls. Baumgartner et al[14] have demonstrated that marginal leaks in class 5 amalgam restorations may be prevented by lateral condensation.

The amalgam must be transferred to the cavity as soon as possible and within three minutes after mixing. The greater the delay between mixing and condensation, the greater the loss in strength.[11] With a large cavity, several consecutive small mixes are preferable to a single large mix.

3. Carving and Finishing. — Proper carving and finishing will improve the

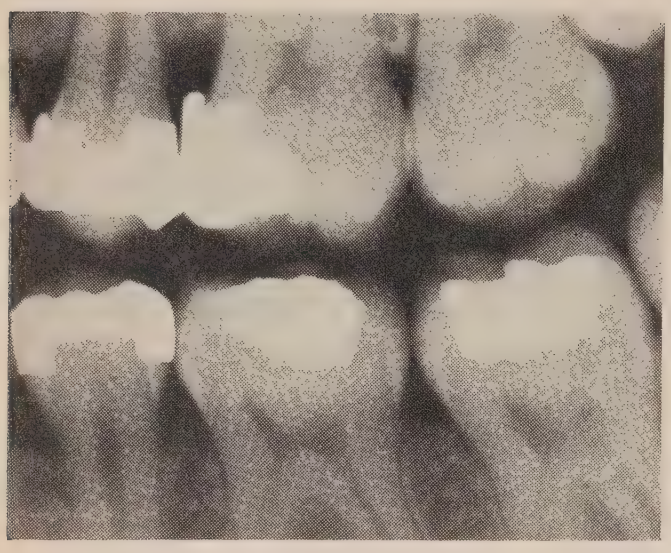

FIGURE 9

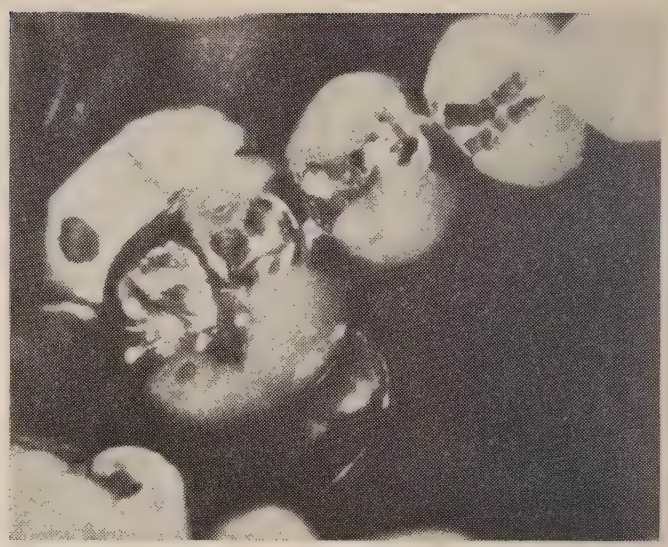

FIGURE 10

life and service of the restoration. Well contoured, finished and polished restorations reflect credit on the dentist.

There is little value in placing a well contoured matrix if you do not carve the marginal ridge properly. Too many amalgam restorations lack a marginal ridge and too often, where there is a marginal ridge, there are no spillways across the ridge. On the other hand, avoid reducing vertical dimensions by excessive carving of the occlusal margins. Use sharp carvers and carve proper functional, anatomical contour.

Do not attempt to polish until 24 hours after condensation — but do polish. If amalgam restorations are well carved and polished as in Figure 10 they will last indefinitely and will compare favourably to a well placed inlay. Lack of polish increases susceptibility to tarnish and corrosion.

Summary

The production of satisfactory amalgam restorations depends on thorough examination, proper diagnosis, an orderly plan of treatment and appointments of adequate length. Use of a rubber dam is mandatory. Proper cavity preparation is facilitated by the use of sharp hand instruments and loupes. If necessary, the restoration may be reinforced with stainless steel pins. Routine use of a cavity liner is advocated. A cement base is used when necessary. Use of a well contoured and wedged matrix, along with an amalgam mix that has at least a 50:50 ratio of mercury to alloy in the final restoration, contributes to an acceptable restoration. The importance of functional anatomy and polish of the finished restoration is stressed.

Résumé

On obtient de bonnes obturations en amalgame grâce à un examen complet, un bon diagnostic, un plan de traitement conforme et des séances suffisamment longues. Il faut se servir de la digue. Les cavités sont mieux préparées, si on se sert d'instruments à main bien coupants et de loupe. On peut, si nécessaire, renforcir les obturations avec des pivots en acier inoxydable. On conseille de toujours se servir d'un vernis protecteur et, si nécessaire, d'une reconstitution en ciment. Une matrice bien adaptée et bien coincée et un amalgame contenant du mercure et de l'alliage dans une proportion de 50:50 contribuent à la confection d'une restauration convenable. L'auteur appuie sur l'importance de la reconstitution anatomique et du polissage de l'obturation.

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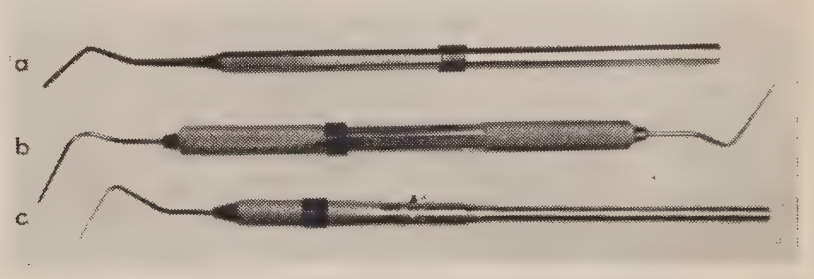
Faculty of Dentistry,
University of Alberta

A. S. Wainberg, D.D.S.,*
Montreal, P.Que.



A modified periodontal probe

Une sonde péridentaire modifiée

The commonly accepted usage of a periodontal probe in routine dental examinations utilizes measurement of pocket depths in a vertical direction (parallel with the long axes of the teeth). Much difficulty and inconvenience commonly arise in such use, particularly in the interproximal regions. Searching deep, narrow, or tortuous pockets requires a very thin

L'usage habituel de la sonde péridentaire durant l'examen de la bouche utilise la mesure de la profondeur des poches dans une direction verticale (parallèle au long axe des dents). Beaucoup de difficultés et d'inconvénience se présentent en général avec cet usage, particulièrement dans les régions interproximales. L'examen des poches profondes, étroites ou tortueuses demande un instrument très fin, mais ayant des marques lisibles. Ceci impose certaines difficultés mécaniques dans la construction de l'instrument. Ce modèle-ci peut être considéré

*From the Department of Periodontology, Université de Montréal.
Du Département de Périodontie, Université de Montréal.
Instrument is available from the Frank J. May Co., Philadelphia.
On peut se procurer l'instrument chez Frank J. May Co., Philadelphie.

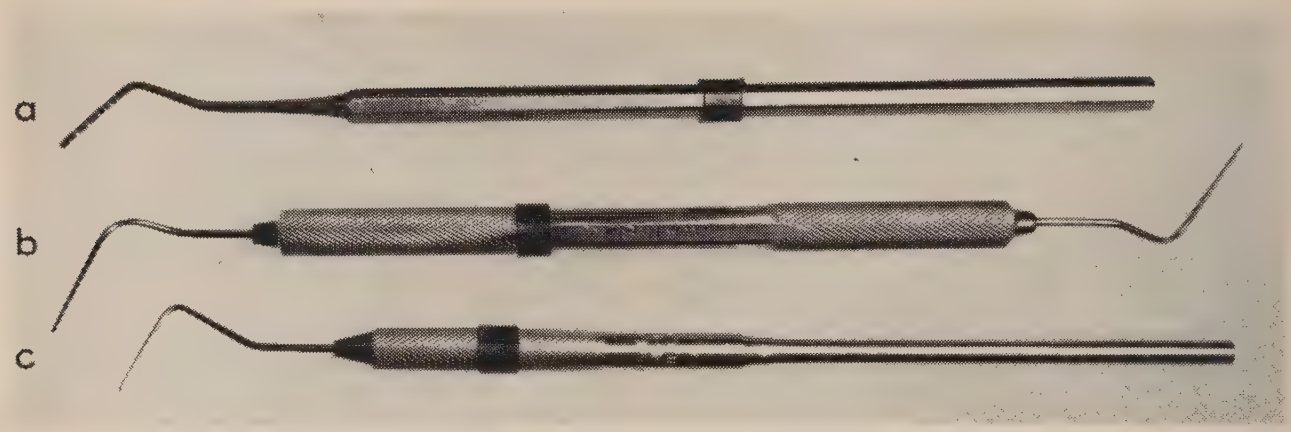


FIGURE 1 (a) Fox probe, (b) modified probe with offset blades, (c) Williams probe • (a) La sonde Fox, (b) la sonde modifiée avec les lames désaxées, (c) la sonde Williams.

FIGURE 2 Note convenience of approach to interproximal area in a vertical direction, due to offset angle of blade • Noter l'aisance avec laquelle les régions interproximales sont atteintes dans une direction verticale, grâce au désaxage des lames.

FIGURE 3 Note convenience of approach for probing in upper palatal region • Noter l'aisance avec laquelle la région du palais peut être sondée.

instrument, yet one with legible markings. This imposes certain mechanical difficulties in instrument construction. The modified probe here described may properly be considered as an offspring of the well-known Williams probe, with the following modifications:

1. Double-ended instrument, offset to right and left so as to enter easily the interproximal spaces vertically. Well-balanced handle. (The entire examination of the arches may be done from one hand position).

2. Extremely thin blade, round in cross-section, yet strong and flexible enough to withstand mechanical abuse.

3. Blade marked off legibly at intervals (from tip) of 1, 2, 3, 5, 7, 8, 9, and 10 millimetres.

comme une dérivation de la sonde Williams, avec les modifications suivantes:

1. Instrument à deux bouts, désaxé à droite et à gauche afin d'entrer facilement dans les espaces interproximaux d'une approche verticale. Le manche est très bien balancé (l'examen entier des arcades peut être fait avec la même position de la main).

2. Une lame extrêmement fine, ronde en section transversale mais assez forte et flexible pour supporter tout abus mécanique.

3. La lame est marquée lisiblement à intervales (depuis la pointe) de: 1, 2, 3, 5, 7, 8, 9, et 10 millimètres.

4. Les pointes sont arrondies et polies pour éviter le danger de pénétrer dans l'attachement épithélial, mais suffisam-

4. Tips blunted and polished to avoid danger of penetrating the epithelial attachment, yet sufficiently thin and pointed for use as a surgical marker for pocket depths.

5. Tips replaceable if broken.

It is hoped that this instrument will prove a useful adjunct where efficient examination of the level of periodontal attachment is desired.

ment minces et pointues pour être employées pour indiquer la profondeur des poches sur la gencive avant la chirurgie.

5. Les pointes sont remplaçables si elles se brisent.

L'auteur espère que cet instrument pourra être un accessoire utile quand le dentiste désire faire un examen efficace du niveau de l'attachement péridentaire.

5757 ave Decelles

Two aspects of work simplification in operative dentistry

Marcel Hébert, D.D.S., Montreal, P. Quebec and*
H. C. Kilpatrick, New Canaan, Connecticut

A system of performing operative dentistry is outlined. The dentist works in a sitting position with a minimum of movements, and with or without the help of an assistant. High speed evacuation is constantly used. This reduces the need for repeated expectoration, since all pieces of amalgam, cement and so forth are picked up by the high-speed saliva ejector-evacuator, leaving the mouth perfectly clean. If the patient finds it necessary to spit during the operation, he can hold on his lap a funnel lined with a perforated paper cup and connected to the evacuator.

Voici un système efficace et reposant pour pratiquer la dentisterie opératoire avec un minimum de déplacements. Le dentiste est constamment assis et ses instruments sont toujours en ligne droite devant lui. L'évacuation rapide est toujours utilisée. Cette façon de faire diminue la nécessité de cracher et aspire les morceaux d'amalgame, de silicate, etc. La bouche est toujours propre. Le patient crache surtout par besoin psychologique.[6] S'il veut absolument cracher durant le travail, il peut tenir sur lui un entonnoir relié à l'évacuateur rapide dans lequel on insère un verre de papier de rechange.

Operative techniques for the reduction of tooth substance are quite personalized, and it is presumptuous to suggest that any one particular method is best. In other words, the preparation of cavities can be done in a variety of ways, but the method selected should be based on sound basic principles.[1] This article outlines a

*Lecturer in dental history, McGill University, Montreal.

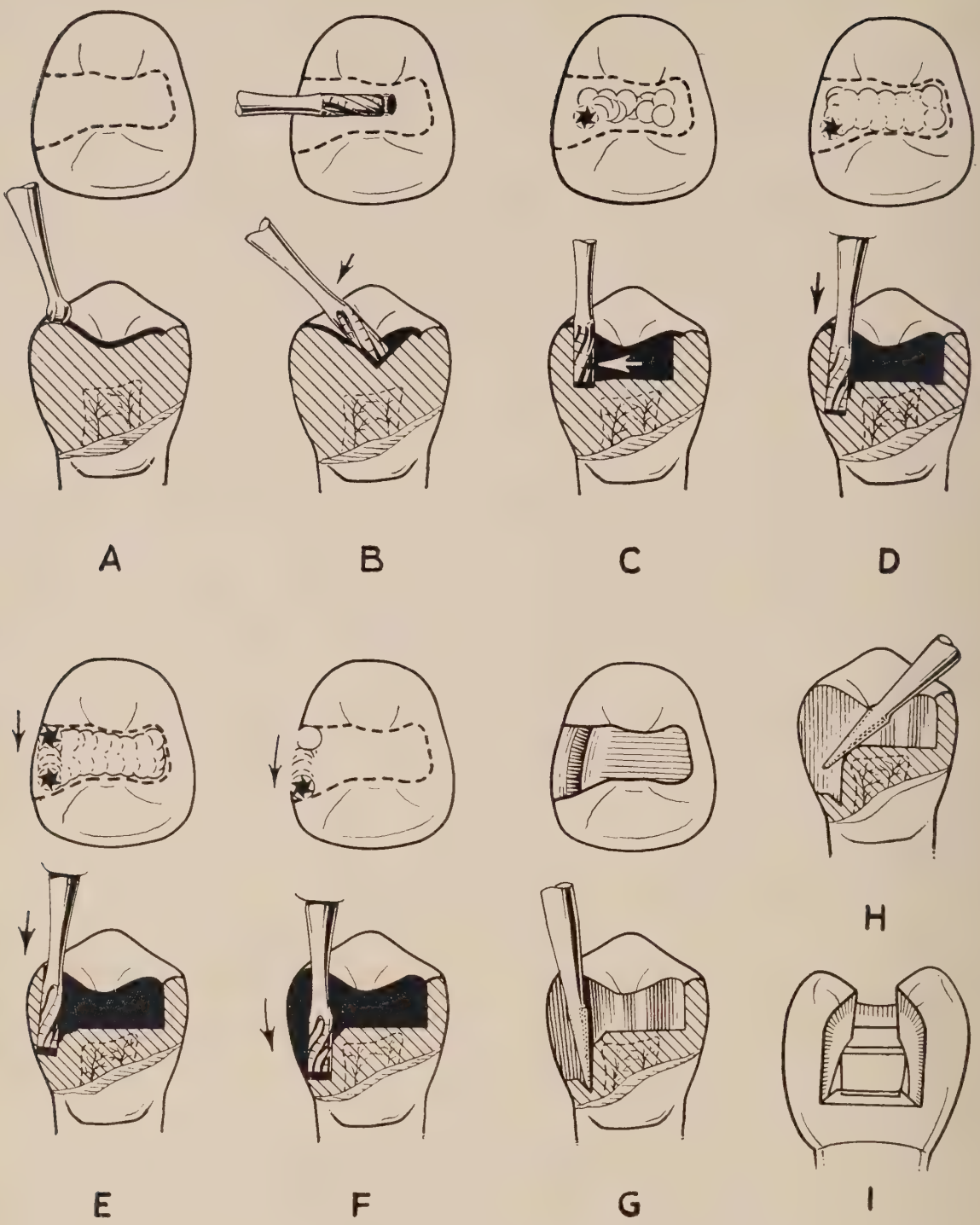


FIGURE 1 Occlusal and sagittal views for class I, II and MOD amalgam preparations. (a) Outline form etched with No. 1 round carbide bur. (b) First penetration made occlusally at a 45 degree angle with a No. *557* straight fissure carbide bur. (c) Occlusal step completed with No. *557* bur and interproximal preparation begins. Cutting tool parallel to long axis of tooth. (d) Interproximal cut carried further toward gingival area without penetrating outer tooth wall. (e) No. *557* bur carried from mesial to buccal without penetrating outer tooth wall. (f) Outer wall now penetrated with No. *557* bur. Interproximal step completed to outline form. (g) All surfaces of cavity preparation smoothed and retention groove placed. (h) Axial pulp line angle rounded. (i) Finished preparation showing gingival groove and rounded axial pulpal angle. (After Kilpatrick: High speed and ultra speed in dentistry; Saunders.)

method of cavity preparation where the dentist operates in a sitting position and makes a minimum of movements. Three contra-angles are used: an ultra high

speed air turbine, a super speed Page-Chayes 909, and a conventional slow speed handpiece.

The air turbine handpiece operating at 300,000 rpm is used with a minimum of pressure. The Page-Chayes 909 super speed belt-driven handpiece has control for various speeds to 200,000 rpm, gives tactile sensation, and uses a coolant spray that requires about half the amount of water necessary for an air turbine.[2]

Class II amalgam preparation

In the preparation of a class II cavity the enamel is penetrated with a straight fissure carbide bur of suitable size, to proper occlusal depth, at a 45 degree angle (Figure 1). An air turbine handpiece is used for this part of the preparation. The occlusal outline is prepared first, and then the proximal box is roughly shaped. This establishes the outline form.

The second phase of this procedure consists in using the super speed belt-driven variable speed contra-angle with either a smooth edge tapered fissure bur or fine diamond (Figure 1). Rotational speeds ranging from 1,500 to 180,000 rpm are used. Since this handpiece is belt-driven, it offers better tactile sensation in accomplishing the refinements of the preparation such as angulation of the walls, retention grooves, and so forth. A conventional slow speed handpiece with a round bur of appropriate size is used to remove any residual decay.

The entire operation is completed without changing the cutting tools. These are previously inserted in the appropriate contra-angles while the local anaesthetic takes effect. Furthermore, these handpieces are installed on the supporting arm (Chayes Instrument Holder) which can be extended or shortened according to the needs of the dentist. They can be within three inches of the operating field if a full-time chairside assistant is not available. Only finger and wrist movements are required to change from one contra-angle to another. But if one does not mind changing the cutting tools during the operation, the complete cavity can be prepared with the super speed belt-driven handpiece, since it offers variable speed control, tactile sensation, and good visibility.

Class V amalgam preparation

The enamel is penetrated with a straight fissure carbide bur of suitable size at an angle of 45 degrees. The same bur is then carried to a 90 degree angle and used to complete the outline, convenience and retention form. A super speed belt-driven handpiece is used for this part of the preparation. Residual decay is removed at slow speed with a suitable round bur. A diamond stone in

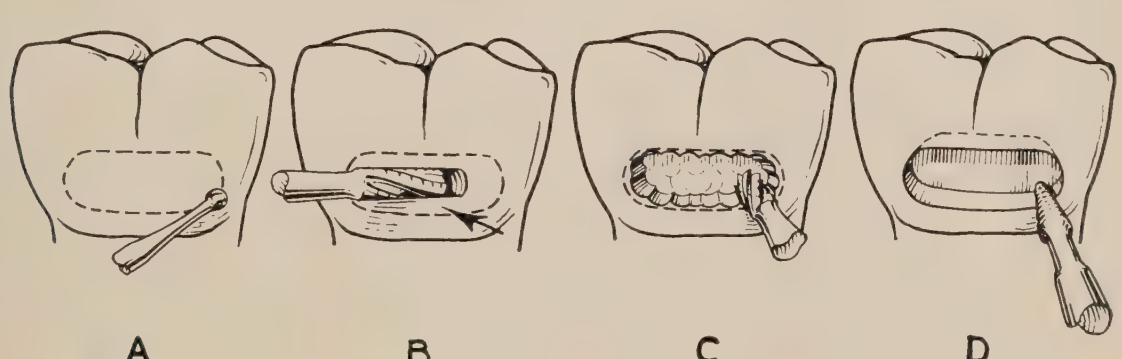


FIGURE 2 Class V amalgam preparations. (a) Outline form etched with a No. 1 round carbide bur. (b) First cut started at 45 degree angle with No. 557 carbide bur. (c) Same bur carried to 90 degree angle and used to complete outline, convenience form and retention form. (d) Diamond used for finishing. (After Kilpatrick: High speed and ultra speed in dentistry; Saunders.)

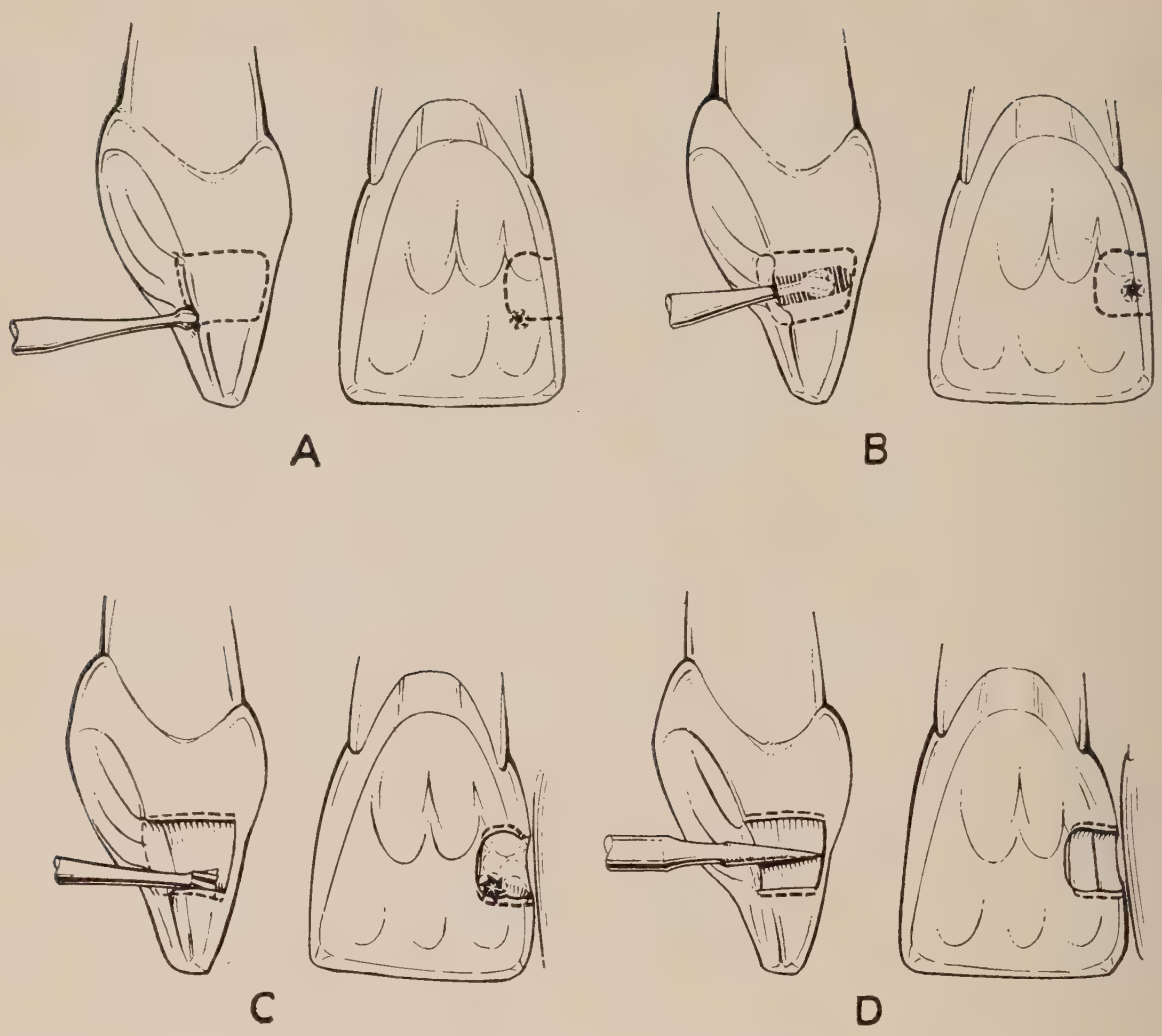


FIGURE 3 Interproximal and lingual views of class III silicate preparations from the lingual approach. (a) Outline form etched on lingual surface, and interproximally if no adjoining tooth is present, with No. 1 round carbide bur. (b) First penetration of enamel made with No. 2 round carbide bur. Outline, convenience and retention form established with No. 2 round bur. (c) Retention form established with No. 35 inverted cone carbide bur. (d) Finishing with diamond. (After Kilpatrick: High speed and ultra speed in dentistry; Saunders.)

the super speed belt-driven handpiece is used at a suitable speed for finishing (Figure 2).

Class III silicate preparation

With a little practice, the contra-angle becomes as easy to use in the anterior part of the mouth as in the posterior part. Many dentists find it more adaptable, particularly when preparations can be done from the lingual approach.

Only the super speed belt-driven contra-angle and the conventional slow speed handpiece are used for this preparation (Figure 3).

The use of a mirror-dip is advantageous since it maintains a completely fog-free and clear mirror. This is no problem when the dip dish is placed on a Mayo tray or Cervical tray (the successors of the conventional bracket table) along with the other operating instruments.[3] This working platform can be within two inches of the operating field if the dentist so desires. The dip dish can be used merely by exercising one's peripheral vision, without displacing the main direction of sight from the teeth.

All preparations are finished with the hand instruments of choice. Here again, peripheral vision is helpful in picking up the instruments from the tray, particu-

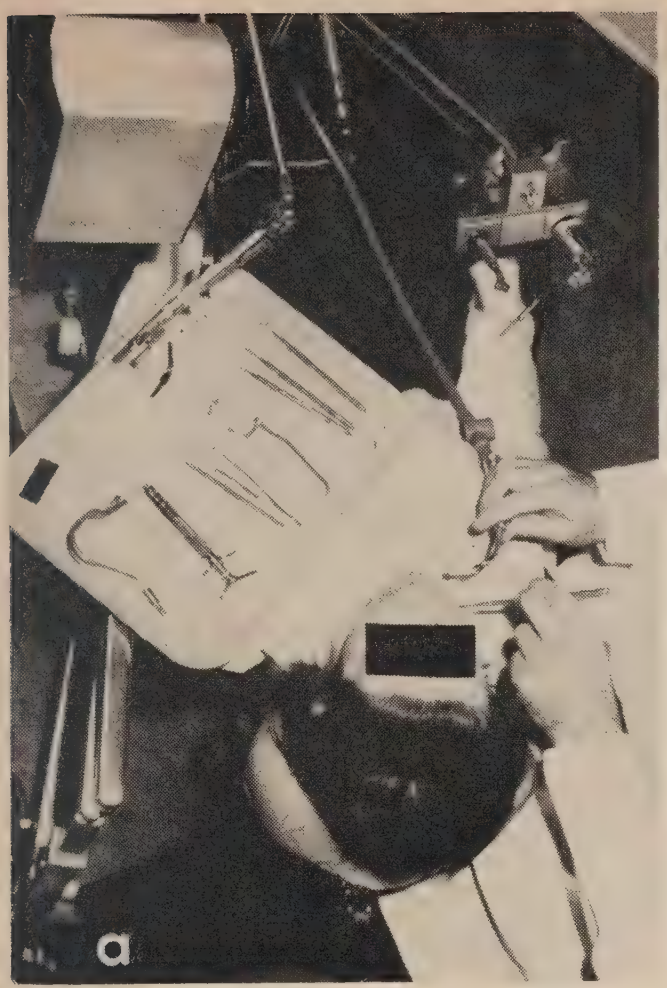


FIGURE 4 (a) View from above and behind the patient. On the left, the cervical tray with operating instruments. Upper left is the housing containing high and low speed motors and handpieces which can be brought close to the operator's right hand. Upper right is the telescoping instrument holder supporting air turbine, combined air-water syringe, saliva ejector, and control switch for high speed saliva ejector and suction system. (b) Note convenience of instrument holder, position of assistant and cervical tray.

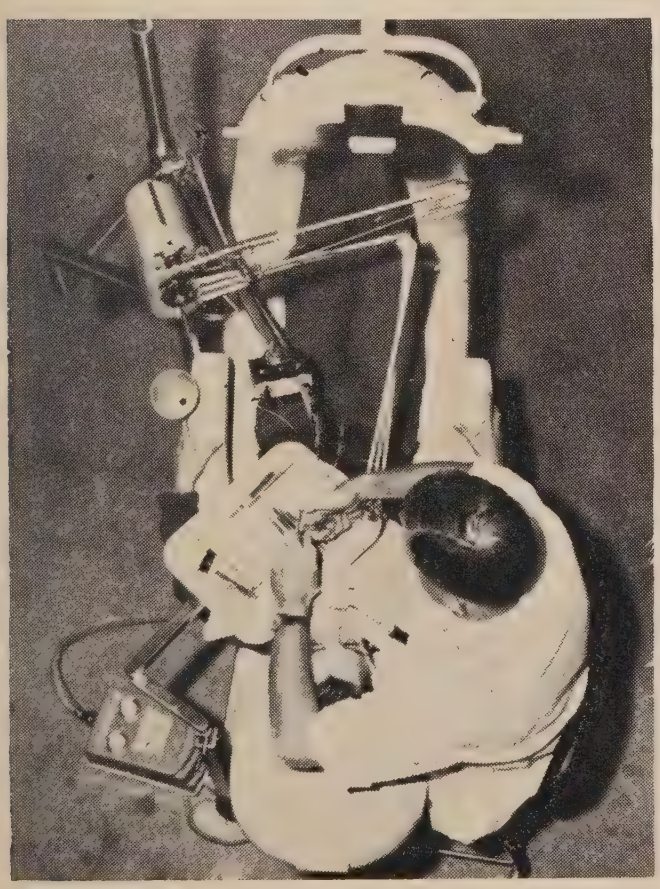


FIGURE 5 General view from above. Dentist changes the cutting tool without moving from the operating position, his left hand resting comfortably on the tray.

FIGURE 6 Patient using rapid evacuation funnel in lieu of conventional cuspidor. With this arrangement, the cuspidor is unnecessary.

larly if they are colour-coded with a pressure sensitive tape (Minnesota Mining and Manufacturing Co. tape No. 471 or No. 190) that will withstand autoclaving.[4] This tape is so thin that it does not diminish the intimate tactile sensation associated with manual instrumentation.

Functional arrangement of operating essentials

Grouping of necessary equipment is helpful for efficient operating. Conventional equipment forces the dentist to go to his instruments.[5] Functional equipment is designed to bring instruments within easy reach of the dentist. This type of equipment (Chayes Dentimo) has a bracket table (Chayes Cervical Instrument Tray) which automatically rises and descends with the dental chair. The operating light and instrument holder also rise and descend with the chair. The instrument holder can be positioned directly in front of the patient's mouth, but below his line of vision. With this assembly, the dentist makes fewer exhausting body twists, turns and reaches (Figures 4, 5).

Conclusion

A system of performing operative dentistry is outlined. The dentist works in a sitting position, with a minimum of movements, and with or without the constant help of a chairside assistant. High speed evacuation is constantly used. This reduces the need for repeated expectoration[6] since all pieces of amalgam, cement, and so forth are picked up by the high speed saliva ejector-evacuator, leaving the mouth perfectly clean. If the patient finds it necessary to spit during the operation, he can hold on his lap a funnel lined with a perforated paper cup and connected to the evacuator (Figure 6).

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Influence of politics on a fluoridation plebiscite

D. G. Fish, M.A., C. R. Castaldi,† D.D.S. and G. K. Hirabayashi,‡ Ph.D., Edmonton, Alberta*

Edmonton's 1959 fluoridation plebiscite apparently was not affected by politics. Although Alberta's Social Credit government passed legislation requiring a two-thirds majority affirmative vote on fluoridation, Social Credit supporters did not generally oppose fluoridation. Over 50 per cent of Liberal, Conservative and New Democratic Party adherents favoured fluoridation, 15 per cent were opposed, and the remainder were indifferent.

Le referendum tenu à Edmonton, en octobre 1959, sur la fluoration n'a apparemment pas été influencé par la politique. Le parti au pouvoir, le Crédit Social, avait passé une loi exigeant une majorité des deux tiers pour l'adoption de cette mesure. Malgré cette décision du gouvernement, ses partisans, en général, ne sont pas opposés à la fluoration. Les partisans des autres partis importants d'Alberta ont voté en faveur de la fluoration dans une proportion de 50 pour cent; contre, dans une proportion de 15 pour cent; et le solde n'a pas affiché d'opinion.

The influence of political parties on non-political referenda is not without precedent. Lazarsfeld and Franzen, for example, state that it is well known that referenda on liquor issues were always correlated with the party vote, the anti-prohibitionist line being an implicit, if not explicit, part of the Democratic Party platform in the United States.[1] Exploratory studies in a sociological survey on the topic of fluoridation plebiscites in Edmonton seemed to suggest that opinions on fluoridation were correlated with provincial party vote and that political influence could have played an important role in the formation of these opinions. More specifically, the informants in this phase of the study implicated the Social Credit Party as being responsible, directly or indirectly, for the unsuccessful outcome of the plebiscite. For example, one informant, a pro-fluoridationist, contended that the establishment of the 66 2/3 per cent majority requirement for the issue constituted an "anti" stand on the part of the party. Another informant thought that since Mr. Manning (the Premier of the province of Alberta) was opposed to the issue she would follow his example, since Mr. Manning was "such a godly

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*Lecturer in sociology;
†Professor of paedodontics;
‡Associate professor of sociology, University of Alberta.

man and placed in power over us to lead us in these things."

These remarks suggested that it would be worthwhile exploring the possibility that failure of the fluoridation plebiscites could be, at least in part, attributed to Social Credit dominance of the province. Accordingly, the following bases were established from which hypotheses were developed.

1. The Social Credit Party had been in power in Alberta since the early 1930's. At the time of the plebiscite the party enjoyed a majority in the provincial legislature of 61 to four seats. If the Social Credit Party was explicitly, or even implicitly, opposed to the issue, its influence would be substantial.

2. The Alberta Social Credit Party is based openly on principles of fundamentalist religion and this particular facet of their policies and administration is well known and publicized. The empirical connection between religion and opinions on fluoridation is not known, but anti-fluoridation opinions based on beliefs that fluoridation is not "natural" and interferes with "God's pure water" could be derived from tenets of fundamentalist religion. This religious interpretation of fluoridation could be possibly attributed to the Social Credit Party.

3. The majority required for the passing of the plebiscite was established by the provincial authorities under the Public Health Act as 66 2/3 per cent rather than the 50 per cent typical of democratic practice. This stringent majority could be interpreted by the public as indicative of resistance on the part of the government to the addition of fluoride to the water supply. In this connection an editorial in *The Edmonton Journal* is particularly apropos:[2]

> . . . Alberta's Social Credit administration has loaded the dice against fluoridation. The act passed by the legislature requires a 66⅔ per cent affirmative vote for fluoridation.
>
> Until recently such a negation could have been taken to reflect the views of the wing of the party which consistently opposes fluoridation as a matter of doctrine. However, earlier this month, when a group of Social Crediters in eastern Canada condemned fluoridation, among other things, Premier Manning said this group was "repudiated" by the national party years ago . . . .

While Premier Manning may have repudiated the eastern Social Credit group, there is no doubt that some members of his own legislature were strongly opposed to fluoridation, conveying their opinions in no uncertain terms on public platforms and in the press.

The foregoing arguments were resolved into the following research questions:

1. Are citizens who express preference for the Social Credit Party more likely to oppose fluoridation and to vote against the issue at the plebiscite than individuals with other party preferences (Liberal, Conservative or Co-operative Commonwealth Federation (C.C.F.))?

2. Are Social Crediters more likely to perceive the Social Credit taking a stand on fluoridation than adherents of other parties perceive their parties taking stands on fluoridation?

3. Are adherents of the other parties more likely to perceive Social Credit taking a stand on fluoridation than Social Crediters perceive the other parties taking a stand?

4. Do Social Crediters ascribe more importance to their political party in deciding about fluoridation than do adherents of other parties?

And, on a speculative plane:

5. Do individuals think that political parties ought to be concerned with or involved with a non-political issue such as fluoridation? Should political parties take a stand on the issue and, as it were, "lead the way?"

These questions are expressed in practical form from the viewpoint of the public health administrator who might be concerned with political influence in a local plebiscite. Formal hypotheses, derived from social theory and from substantive related research in the area of voting behaviour, were formulated for the purpose of the research.

Method

The data in this paper were gathered in a city-wide sociological survey following an unsuccessful plebiscite in October 1959 on the issue of fluoridation in the City of Edmonton. Sampling methods and interview techniques have been described in detail in previously published papers,[3-6] that reported findings on the distribution of opinions on fluoridation and on interest in fluoridation. Three hundred and fifty-six people were randomly selected and interviewed for this study.

The specific questions asked in the survey relevant to this paper were:

1. What is your political party preference?
2. Does your political party take a particular stand on the fluoridation issue? If so, what stand do they take?
3. Do any of the political parties other than your own take a particular stand on the issue of fluoridation?
4. Do you think that political parties should take a stand on the fluoridation issue?

The interviewers were instructed to "probe" beyond the immediate response required by the questions. If, for example, a respondent said "no" to the last question, the interviewer was required to ask "why not?" seeking for the respondent's arguments justifying this response.

Results

Respondents' Party Preference. — Of the total sample of 356 respondents, 84 claimed a preference for the Conservative Party, 54 for the Liberals, 56 for the Social Credit Party and 20 for the C.C.F. No preference at all was given by 108 respondents while another 34 in the sample were classified for analysis as "rational voters." This latter group expressed no party preference but commented that they "always voted for the man" or "it depends on the issues," and so forth. The common factor to these latter respondents was the fact that they had developed their own standards for judging issues rather than adhering to a particular party line or platform.

Only 16 per cent of the respondents acknowledged a Social Credit preference. Even if all the "no preference" voters and all the "rational voters" who voted at the provincial elections had cast their vote for Social Credit, this would still not approximate to the Social Credit majority. Though inconsistent with the huge Social Credit majority in the Alberta Legislature, this response to our first question may be a reflection on the interplay between federal and provincial politics in Canada. The stated political preferences approximate more closely to federal voting than to provincial voting. This suggests that Social Credit support in Alberta is partly derived from delegation of votes from individuals with other party preferences rather than from absolute popularity. It was not our intention to explore this rather interesting finding but on this basis it appears that Social Credit influence may be less than might be supposed from its legislative majority.

The distribution of interest in fluoridation by political preferences was not statistically significant. Generally the Social Crediter is no more and no less interested in fluoridation than is his Conservative, Liberal or C.C.F. counterpart. The fact that the Social Credit Party may be inferred as having greater interest or stake in the issue than the Conservative or Liberal Party was not reflected among its adherents.

Similarly, the hypothesis that Social Crediters are more likely to be opposed to fluoridation than are Conservatives, Liberals and other party adherents was not supported by the data. Of each major party, just over 50 per cent of its adherents were in favour of fluoridation and approximately 15 per cent opposed, the remainder being indifferent or undecided. If a Social Credit party line opposed to the issue exists, it apparently was not adopted by the large majority of those who expressed a preference for the party; this does not, of course, preclude the fact

that the 14 per cent of the Social Crediters who expressed "anti" opinions could have been influenced by their party. That they were probably not influenced by their political party will be shown subsequently.

When voting records were analysed by party preference it was found that direct Social Credit influence in the direction suggested by the exploratory studies was minimal. Social Credit "preferences" were found to be significantly less likely to vote at the city elections and at the fluoridation plebiscite than were Conservative "preferences." Of the latter, 57 per cent turned out for the fluoridation plebiscite compared to only 35 per cent of the Social Crediters. The accusation that the results of the city elections and plebiscites were influenced by Social Credit policy is, therefore, somewhat belied considering that the total Social Credit vote at the city election constituted only approximately 13 per cent of the poll. Admittedly, this would be sufficient to influence the ultimate outcome if there were clear indications of party influence on the direction of the vote. Contrary to our predictions, however, the Social Credit "preferences" cast their vote in favour of fluoridation as frequently as the adherents of other parties. Thus, while 76 per cent of the Social Crediters actually voted in favour, Conservatives and Liberals voted in favour 70 per cent and 74 per cent respectively.

Attitude Of Respondents' Own Political Party. — The conclusion from the foregoing evidence that Social Credit influence in the fluoridation plebiscite was minimal is inferential and the data could be subject to alternative interpretations. However, when we analysed responses to the question "Does your political party take a particular stand on the fluoridation issue? If so, what stand do they take?," it seemed fairly clear that the association of fluoridation and political party was indeed an unfamiliar one for the majority of people. Out of the 214 respondents who expressed a political preference only 19 thought that their party took a stand or had anything to say on the issue and all but two of these perceptions of "anti" stands were made by a Conservative and a Liberal respectively. More significantly, the seven Social Crediters who saw their party as taking a stand on the issue all thought that the stand was in favour of fluoridation. The Social Crediters in our sample, then, appeared to interpret neither the 66 2/3 per cent majority requirement nor the attitudes of the splinter groups and individual members of the party as representing party policy on fluoridation. Perhaps it would be safer to say that the respondents had never questioned the 66 2/3 per cent majority requirement (if, in fact, they knew of it, which in retrospect seems unlikely, and an aspect well worth testing in future research), and they had either not heard of the various opinions expressed by individual members of Legislative Assembly or else were content to accept these opinions as private and individual to the member concerned.

The basis for the perceptions of stands by the various political parties was not clear from the respondents' answers. It is most likely (especially since, in every case, the perceptions were congruent with the perceiver's own stand on the fluoridation issue) that the perceptions represented assignment or projection of the perceiver's own opinion to a group with which he identifies. This particular social psychological phenomenon has been noted in voting studies where it has been found that "the closer the voter is to a group socially, the more he 'pulls' the group into similar proximity politically."[7] No doubt a similar process could operate with adherence to a political party and ostensibly unrelated public issues such as fluoridation.

Attitudes Of Other Political Parties. — The responses as to the perception of stands on fluoridation by parties other than the respondent's own again reflected no concern with the possible association of the Social Credit Party and an anti-fluoridation viewpoint. Of the 23 re-

spondents who perceived other parties than their own as taking a stand, only two perceptions were of "anti" stands, one being attributed to the Liberal Party by a Conservative and the other not knowing which party took the "anti" stand. A Conservative, a Liberal, and a "rational voter" each perceived the Social Credit Party as taking a "pro" stand (contrary to our predictions) while eight Social Crediters saw the Conservatives (3), Liberals (3), and C.C.F. (2) as taking stands in favour of the issue. Lest it be thought that these Social Crediters were opposed to the issue and expressing hostility to other political parties, these Social Crediters were all, in fact, in favour of the issue themselves. Indeed, all perceptions of stands of other parties were congruent with the perceiver's own opinion, a contradictory finding to related studies showing that hostility to "out" groups (such as religious or ethnic minorities) is often expressed by assigning them to the opposition political party.

Only 17 respondents attributed any importance to their political party in making up their mind on the fluoridation issue and only three of these were Social Crediters. Seven were Conservatives, five were Liberals, and two C.C.F. supporters. The local influence of Social Credit and its potential association with the fluoridation issue did not appear to be reflected in the assignment of importance to it. None of those who thought that their party was important were opposed to fluoridation, all being definitely in favour of the issue. Unfortunately, it is not clear as to why the party was important to the individual but in the case of two of the Conservatives, one of the Liberals, and both of the Social Crediters, the respondents also perceived their party as taking a stand on the issue. There was some basis at least to their assignment of importance to the party, albeit a perceived stand.

Role Expected Of Political Parties. — Despite the very few who perceived any political parties as taking a stand on the fluoridation issue, over 50 per cent of those with political preferences believed that political parties should take a stand on the issue (based on responses to survey question 4). The difference between the various "preferences" on this question was not statistically significant, although there was a slight tendency for Conservatives and Social Crediters to accept a political pronouncement on the issue—perhaps because these respondents were more willing to attribute a practical influence to their parties at that time in power in the federal and provincial governments.

Generally speaking, those who thought that political parties should take a stand on the fluoridation issue qualified their remarks in one of three ways. One group seemed to think that by taking a stand on fluoridation, political parties would be able to help the people make up their minds — the party would, in other words, provide an authoritative source. The implication of this view, as derived from the responses to "probing," appeared to be that the party(s) would take a stand congruent with the respondent's own and thus ensure either the success or failure of the plebiscite, whichever viewpoint the respondent happened to take. A second group, a very small one, felt that political parties should not only take a definitive stand but should bend their efforts to changing the laws so that a plebiscite is no longer a prerequisite to fluoridation—again, there was the further implication that the intervention of the political party would aid the respondent's own cause. A third group believed that the role of the political party lay in its influence in getting the people out to vote on the issue —this could be interpreted either as ensuring its failure or its success.

Summary and conclusions

The influence of politics on a fluoridation plebiscite has been studied in Edmonton, Alberta. Findings were as follows:

1. The distribution of interest in fluori-

dation by political party preference is not significant.

2. Although the Social Credit government enacted legislation requiring a two-thirds majority affirmative vote on fluoridation, Social Crediters do not generally oppose fluoridation. Of the adherents of the other major political parties in Alberta just over 50 per cent favour fluoridation, 15 per cent are opposed and the remainder are indifferent to the subject.

3. Less than 10 per cent of those interviewed thought that their own political party had taken a stand on fluoridation and of these, all but two people perceived the stand to be in favour of fluoridation.

4. Over 50 per cent of those interviewed thought that political parties should take a stand on fluoridation.

Several conclusions relevant to public health administration may be drawn from the foregoing. First, this study underlines the pitfalls in explaining the public's attitude to problems of health by reference to the opinions of well informed protagonists or to those of a casual or accidental sample of citizens. In this case, the random sample presented a totally different picture of the climate of opinion than was presented by pilot investigations.

Secondly, though one may postulate political influence on the fluoridation plebiscite, no evidence was found of significant political influence on the issue. It seems fairly clear from the interviews that an association between politics and a non-political referendum is unfamiliar to most people and that the issue comes before the public as a controversial health topic with few if any political implications as far as the public is concerned.

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case reports

Rehabilitation of mobile teeth by centre-poise bridge partial denture construction

A. A. Feher, D.D.S., Peterborough, Ontario

Important, but mobile, teeth may sometimes be usefully preserved by splinting them and using them for retention of a partial denture.

One of the most perplexing prosthodontic problems, where posterior mandibular teeth are missing, is the fate of periodontally infected, loose, and malaligned mandibular anterior teeth. A conventional partial denture to replace the missing posterior teeth may introduce lateral forces which are unfavourable owing to poor bone support.

If these remaining teeth are used for retentive purposes, the forces applied must be equally distributed among them and directed parallel to their long axis. This prevents the teeth from tipping labially. Mechanical and physiological problems can be resolved by using a splint bar with a knob which fits into a female receptacle in the partial denture.[1] This is not a new principle. It dates back to the first decade of the twentieth century and found expression under such names as the Fossume bar, the Bennett Blade and Gilmore attachment.[2] The Dolder bar, which is a contemporary version, is popular in Europe.[2]

The forces of mastication are distributed between the anterior teeth and the posterior ridges in much the same way that an automobile trailer with its bumper hitch distributes its load. The teeth are analogous to the wheels of the trailer and the splint and knob correspond to the back bumper and hitch.[1]

Examination. — M. M., a 52-year-old white male, attended the outpatient clinic of Mary Immaculate Hospital, Jamaica, New York, for dental care. Examination revealed an otherwise well-nourished, neatly dressed, well-groomed man who had obviously neglected his oral hygiene for many years. His few remaining teeth consisted of roots and teeth with severe periodontal infection. A complete series of intra-oral periapical radiographs were taken and impressions were made for study models.

Treatment. — The radiographs (Figure 1) revealed that none of the maxillary teeth could be saved and they were subse-

FIGURE 1

quently extracted. In the mandible we intended to retain the right cuspid and first bicuspid and left second incisor and cuspid. However, following preliminary periodontal therapy, the mandibular left second incisor was extracted. The complete periodontal therapy consisted of supragingival and subgingival scaling, curettage, gingivectomy and packing.

The three remaining teeth were prepared for full coverage and their crowns were cut parallel with the proper taper and draw. Copper band and compound impressions were taken from which copings were made.

The distal extension areas of the mandible, including the retromolar pads, were muscle trimmed with a custom-made acrylic impression tray from which the labial segment in front of the remaining teeth had been cut out. The copings were put into place and a rubber base impression was taken of the areas distal to the copings. The anterior area containing the copings was over-filled with impression plaster and the labial tray segment was forced into place thus forcing the plaster inwards. The impression was sent to the laboratory for the fabrication of the splint bar.

The splint bar was waxed according to the position of the remaining teeth in order to distribute pressure evenly.[1] It was placed slightly lingual to the residual ridge with the centre-poise knob located according to the curve of Spee of the posterior ridges. The top of the knob was below the lower half of the abutment teeth to prevent torque and leverage. After waxing, the bar and knob were cast in chromium-cobalt casting alloy (Vitallium) and soldered to the abutment copings. Porcelain facings were then added and the splint bar was tried in the mouth (Figure 2).

A partial lower denture casting was made with relief about the abutment teeth and bar to allow for movement during mastication. An internal type of clasp was used.[1] The centre-poise suspension cup was designed so that it had a concavity on the top of the knob to allow

FIGURE 2 Splint bar attached to abutment copings.

only for pressures coincident with the long axis of the teeth and for subsequent resorption of the posterior ridges.[1]

Thirty-three degree Pinkerton-Turner artificial posterior teeth were used. Porcelain teeth were used in the maxilla and plastic teeth in the mandible. The mandibular anterior teeth were butted into the model to help prevent any forward tilting of the partial denture. The teeth were set up and milled into balanced occlusion. A temporary cement was used to cement the bridge. The complete upper and partial lower dentures were then inserted (Figure 3).

Follow-Up. — The patient will be reexamined after several months and radiographs will then be taken of the abutment teeth. Usually, at this time, corrections will have to be made on the tissue side of the splint bar due to the intrusion of the abutment teeth. The abutment teeth are usually intruded in a well-designed appliance due to forces applied to them parallel to their long axis.[1] The bridge is permanently cemented thereafter and the dentures are examined for any necessary adjustments.

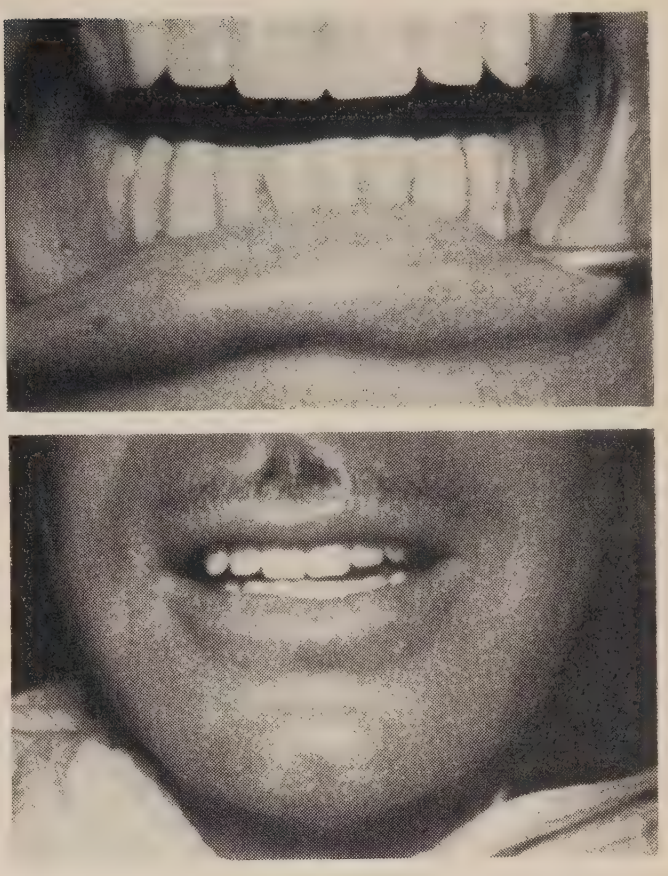

FIGURE 3 Appearance with bridge cemented to place and complete upper and partial lower denture in position.

Summary

A technique for splinting highly mobile teeth and using them for retention of a partial lower denture is described. Vitally important mobile teeth should not be condemned until every effort has been made to save them.

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1. Jermyn, A. C. Rehabilitation of mobile teeth by center-poise bridge partial denture construction. Series 1 — Number 23. Howe Sound Company — Austenal Company Division, April 1963.
2. Adisman, Kenneth. Internal clip attachment in fixed-removable partial denture prosthesis. New York J. Den. 32:125, 1962

Suite 8, 435 George St. North

abstracts

HOW LONG DOES SUGAR REMAIN IN THE MOUTH?

G. F. Cox, F. F. Draus and Cheryl P. Entress. D. Progress 3:152, 1963.

A paper cup, wooden toothpicks, corn syrup, and commercially available paper strips *(Tes-Tape)* bearing glucose oxidase, peroxidase, and a colour-changing oxygen acceptor (orthotolidin) were used to show the presence of glucose in the mouth. Many groups were tested in which each subject "swished" a 1:5 dilution of syrup in his mouth for 30 seconds, after which samples of saliva were taken with toothpicks at 3-minute intervals. Clearance time ran from 6 to 24 minutes. This is a simple method to impress dramatically upon children the reasons for brushing the teeth immediately after eating.

CORTICOSTEROID THERAPY OF THE PULP (KORTIKOSTEROIDBEHANDLUNG DER PULPA PATHOLOGISCH IN FRAGE GESTELLT)

L.-J. Baume and G. Fiore-Donno. Zahnärztl. Welt/Reform 64: No. 14: 422, July 25, 1963.

Controlled clinical, haematological and histopathological observations in 158 treated human teeth suggest that combined corticosteroid-antibiotic endodontic therapy is a questionable procedure. The absence of symptoms induced by this type of therapy masks a variety of histopathological responses which have not yet been fully investigated. Moreover, the assumption that the pulp reacts to corticosteroids as does other connective tissue has not been substantiated. Neither a favourable postoperative course nor a succession of normal blood specimens from the pulp can conceal the long-term damage induced in that organ by corticosteroid-antibiotic therapy. This takes the form of a general transformation into connective tissue, persistent chronic inflammation, and cessation of the production of dentine.

THE OUTLOOK IN PUBLIC HEALTH DENTISTRY IN NEW ZEALAND AND OVERSEAS

G. H. Leslie. New Zealand D. J. 59:13, 1963.

Forty years ago the dental profession in New Zealand saw the need for instituting a dental care program for school children. This program was ultimately absorbed by the social security system and broadened with the intention of including adolescents up to the age of sixteen. The New Zealand Dental Association agreed to an arrangement whereby private practitioners treat these adolescents on a fee-for-service basis. This arrangement may possibly be extended to provide care for those up to the age of nineteen. It is not known how many young adults have been persuaded in the past to seek regular dental treatment after the age of sixteen. A national survey is to be conducted for this purpose. It is hoped that the results will show that a sufficient number value their dental health enough so that the survey will endorse the proposal to cover the age group from sixteen to twenty-one.

At present there are certain social security benefits for certain cases among the aged and needy but not all deserving cases qualify for this assistance. Some hospitals provide dental treatment at reduced fees but the policy is not uniform. The Dental Health Committee of the New Zealand Board of Health is shortly to review the hospitals' program of dental care. Here, too, it is hoped that the hospitals will at least partially answer the question of dental care for the older people.

The need for orthodontic care for children, which is not available under the present program, is now being recognized in New Zealand.

The parents of the New Zealand children are relieved of the financial burden of general dental care under their social security system and should be in a position to assume the responsibility of any special treatment required. The New Zealand School Dental Service has been developed slowly and methodically and the cost to the State of including orthodontic services would be considerable.

CONTROL OF DENTAL HYPERSENSITIVITY: PRELIMINARY REPORT ON A STRONTIUM - CONTAINING DENTIFRICE

Harry Skurnik. J. Periodont. 34:183, 1963.

The author conducted clinical trials of a new home-use dentifrice containing ten per cent strontium chloride for the treatment of dental hypersensitivity.

The patients observed in these trials were drawn from regular practice; the only important criterion for inclusion was the presence of established dental hypersensitivity, whether to thermal, chemical or tactile stimuli.

Response to the treatment was usually reported or noted within three to five days after first use, but took up to two weeks in some patients. When complete relief of hypersensitivity did not occur within two months, the patient was considered unresponsive to further medication.

In evaluating the efficacy of the treatment, attention was given both to the patients' impressions as elicited at periodic office visits and to their observed involuntary responses to provocative stimuli (air blast, instrumentation, etc.) induced in the chair. A significant improvement occurred in 93 per cent of the 86 patients to whom the dentifrice was issued. The dentifrice was non-toxic, non-allergenic and non-irritant; and had suitable polishing and foaming attributes, so that it was readily used by patients as a routine replacement for previous tooth pastes. In its effectiveness and in its simplicity, home use of a strontium ion dentifrice was considered an eminently useful measure.

EARLY DENTAL CARIES

J. Yardeni. D. Progress 3:225, 1963.

There is much disagreement as to the significant characteristics of naturally occurring caries. A major difficulty in the study of caries is the lack of definite criteria for identifying early caries and differentiating it from caries produced experimentally. In this study intact human permanent teeth showing brownish spots were split longitudinally and studied both macroscopically and microscopically. The pigment was found to extend from the brown spot into the dentine but not as far as the pulp. The enamel surface was still apparently intact. It is emphasized that an enamel lesion produced in vitro is not necessarily early caries if the lesion has no pigmentation. These findings could be the basis for comparison between genuine and artificial caries.

editorials

Alternative mechanisms for prepaid dental care

A few members of the profession have recently expressed their disapproval of the concept of the dental service corporation which the Canadian Dental Association endorses as one of several feasible methods for extending the availability of dental care to the public. Claiming that dental service corporations pose a threat to the livelihood of every practitioner and a challenge to his right to treat his patients according to his best professional skill and judgement, these dentists buttress their views with sundry assertions and assorted quotations plucked from the context of articles of incorporation and service agreements of several existing corporations in Canada and the United States. By spreading their gospel they naturally arouse latent fears of a government take-over of the profession. And perhaps the average practitioner might be pardoned if he visualizes the dental service corporation as some kind of latter-day Trojan horse, conceived by a deluded coterie within the profession, and bent on the total destruction of private dental practice. Nothing could be further from the truth.

A dental service corporation is simply one of several devices for meeting group demands for prepaid dental care. A properly constituted dental service corporation eliminates non-professional third party intrusion between dentist and patient and offers a means whereby the profession can maintain control of the administration of its services. For these reasons the Canadian Dental Association has urged all corporate members to establish dental service corporations so that this instrument will be available to the public when there is a group demand for voluntary prepaid dental care, where there is need for limited state-subsidized dental care programs for public assistance beneficiaries, or when any province decides to embark on a more generalized state-subsidized dental care scheme.

This does not gainsay a useful role for prepayment plans underwritten by responsible commercial insurance companies. These plans provide a desirable alternative to the non-profit profession-sponsored plans. Whereas the latter almost invariably include stipulated fee schedules approved by the profession, plans issued by commercial insurance carriers may be offered either on a scheduled or unscheduled comprehensive basis. Unscheduled plans have the advantage of automatically recognizing variation in fees by geographic location and at the same time avoiding any appearance of attempting to influence the level of fee schedules. This alone is a valuable feature of these plans. But it does not eliminate the desirability of having the alternative mechanism of profession-sponsored plans ready and available.

Situations can and do arise where the commercial insurance carrier is unacceptable and where lack of the alternative profession-sponsored mechanism may have serious consequences for the profession. For instance, trade union officials who reject commercial insurance carriers are often receptive to the dental service corporation as a contracting agency for the provision of prepaid dental care for union welfare fund beneficiaries. If this mechanism is unavailable there is

always a third alternative — the closed panel clinic — which organized labour has not hesitated to use in the past. Likewise, if government rejects the commercial carrier as a vehicle for a state-subsidized dental care scheme, the dental service corporation may be the only acceptable alternative to government administration of the scheme. In fact the existence of a dental service corporation could well determine the degree of authority that would be accorded to the profession in planning, organizing and administering its services if a state-subsidized dental care scheme were to eventuate.

Dentists and dental organizations must weigh for themselves the advantages of non-profit profession-sponsored dental service corporations against the services which can be provided through responsible commercial insurance companies. Each has its place. Each is worthy of careful appraisal because the issues are fundamental to the welfare of the profession.

Discrimination against dentists under health insurance plans

Physician-sponsored medical prepayment plans and commercial insurance plans that provide coverage for oral surgery do not usually honour claims when these services are rendered by a surgeon who is a dentist rather than a physician. A recently enacted prepaid medical care scheme in one province upholds this principle. And now Ontario's proposed medical services insurance legislation, if it follows a similar course, will aggravate a problem which has already caused considerable dismay to the dental profession. For if enacted in its present form, Ontario's Bill 163 would entitle beneficiaries to specified services when they are performed by a physician, but would deny entitlement for the same services when they are performed by a dentist. Oral surgeons, in particular, consider this unjust and discriminatory; unjust because the patient who is economically forced to go to the practitioner whose claims are honoured is denied the freedom to choose the surgeon best qualified to handle his problems; discriminatory because this practice directly affects the livelihood of the dentist who is legally and educationally qualified to render the required service.

Because important differences distinguish profession-sponsored prepayment plans, commercial plans and government-sponsored plans, it is preferable that each be considered individually within the context of this problem.

As pointed out in these columns on a previous occasion, there is nothing to prevent a physician from legally rendering any type of dental care. That he generally does not do so is governed by choice, not by statutory considerations. But under certain circumstances physicians may and do render services acknowledged to be dental. Although no dental service corporation has so far activated a dental service plan in Canada, it is questionable whether any such plan would automatically honour claims for covered services when these are performed by a physician unless there were some prior agreement with a corresponding physician - sponsored prepayment plan. And without such agreement we obviously cannot expect reciprocal treatment by medical prepayment plans of claims submitted by a dentist.

It may be asked whether a health profession can establish prepayment plans that make exclusive provision for the services of its own members. This is subordinate to legal requirements in each province. Some American states — notably New York, Illinois and Wisconsin—stipulate payment of the same amount for a covered benefit regardless of whether the services are rendered by a physician or a dentist. Apparently this requirement does not exist in Canada. Consequently

there is no obligation on the part of one profession to establish plans that honour claims by members of another profession. But the consequences that flow from such professional isolationism have serious repercussions. For instance, procurement of professional attention may be unnecessarily hampered in communities where local physicians are too busy to render a service that can be legally performed by a dentist. Moreover, economic sanctions engendered when a numerically superior profession establishes restricted insurance plans are extremely serious for members of a numerically inferior profession which may be quite incapable of establishing insurance plans for its limited services.

Where, as in oral surgery, areas of overlapping interest exist, one possible remedy would lie in prior agreement whereby the oral surgeon becomes a participant in the medical prepayment plan. Thereby his payment is guaranteed, but he also becomes obligated to share the underwriting risk. Without this agreement, any 'exclusive' plan should at least indicate to subscribers the services that are excluded from coverage when rendered by a member of another profession. Purchasers should not be permitted to infer that these services are covered under all circumstances.

In the case of commercial insurance areas there seems to be no logical justification for withholding benefits if covered services are performed by an oral surgeon. Commercial carriers providing health service benefits should assure that the policy holder may obtain the covered benefits from any practitioner legally competent to render them. An insurance company that refuses benefits on the ground that lawful treatment of the oral cavity is not compensable unless performed by a physician simply discriminates against dentists. It is to be hoped that this objectionable practice will disappear as commercial insurance administrators become more familiar with the role of the oral surgeon in total health care for the patient.

The exclusion under Ontario's Bill 163 of all benefits not related to physicians' services unfortunately hardens the interprofessional divisions already evidenced by physician-sponsored and commercial insurance plans and clothes this practice with a mantle of legislative approval. We are told that the decision to limit this proposed legislation to physicians was based on expediency because physicians are a large and well defined group, and that enactment of the bill in its present form does not preclude the possibility of separate legislation for similar treatment of dental services at a later date. Expedient or not, this separate treatment of physicians and dentists seems inconsistent, discriminatory and possibly even questionable from a legal standpoint. It is inconsistent because the bill purports to facilitate the public's access to health services, yet imposes capricious handicaps on acquisition of these services. It is discriminatory because it favours one group of citizens and taxpayers (physicians) at the expense of another (dentists). And it may also be legally untenable because existing statutes confer competence for the performance of specified services on members of both professions while the newly proposed statute would deny entitlement for the same services when they are rendered by members of one profession.

It is claimed that if such entitlement were extended to dentists, similar treatment would be demanded by chiropractors, osteopaths, podiatrists and others who are licensed to practise within a limited area of the health field. That may be so. But it does not in any way lessen the inconsistency of conferring practice privileges on various groups while denying compensation to all but one of these groups.

Of interest in this connection is the reported desire of the Ontario Medical Association's section on ophthalmology to have refractions excluded from Bill 163 because there are insufficient ophthalmologists to meet all the demands for this service. Refractions, however, are

also performed by optometrists whose services are not covered by the bill. Blanket exclusion of refractions, for whatever reason, eliminates the risk of discrimination between ophthalmologists and optometrists. And discrimination between specific services at least removes the element of injustice inherent in discrimination between practitioners.

It is important that this problem be resolved at the earliest opportunity. Perhaps this can best be achieved by amicable discussion between representatives of the professions and insurance carriers. It is imperative that equitable solutions be forthcoming for physicians and dentists can ill afford the luxury of interprofessional schisms in times like these.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

DISCRIMINATION AGAINST ORAL SURGEONS

To the Editor:

I write this letter as one of the 64 oral surgeons in Canada. I am motivated by my increasing concern over the future of this specialty in Canada. Those of us involved in the daily practice of oral surgery are keenly aware of the problems that beset us but we wonder if the rest of the profession is fully apprised of the facts. If not, it is important that they be informed for oral surgery is an integral component of our beloved profession and its interests are dentistry's interests.

As dentists know, oral surgery is the maturation of the oldest specialty in dentistry — exodontia. As a result of the natural evolution of oral surgery its scope is now far beyond the removal of teeth, although this still forms the bulk of work involved. The sphere of activity now includes treatment of cysts, neoplasms, fractures, developmental abnormalities, and mucosal redundancies relating to the human oral cavity and its associated structures. Training programs in the larger and older dental schools of North America have developed over the years to meet the needs of the evolution of this specialty. The dental licensing boards of various provinces and states have seen fit to recognize oral surgery as a specialty of the dental profession and have prescribed requirements for qualification within their particular jurisdiction. Three years of intensive graduate training in an accredited institution is mandatory for eligibility by the American Board of Oral Surgery. More recently a fourth year has been added to a few programs.

This would suggest that those institutions responsible for training oral surgeons have realized the importance of a thorough background in a clinically oriented basic science framework for the proper nurturing of this specialist. It would suggest that the training

elements have been stylized to be commensurate with the increasing clinical responsibilities the oral surgeon has been assuming.

In the past few years there has developed an awareness by our medical colleagues, and more particularly our surgical colleagues in medicine, of the growth and sophistication of this dental specialty. The oral surgeon of dentistry is now being taken seriously by those members of the medical profession whose area of interest lies close to ours. Indeed, so serious have some of them become that far-reaching resolutions are being considered and adopted in various locales across the nation—resolutions which have as their desire and intent the arbitrary restriction of the scope of oral surgery as practised by the dentist. Furthermore, such resolutions are being prefaced by the admonishment that dental oral surgeons are invading the field of the medical specialties and that it is possible we may be guilty of practising medicine illegally. Were this premise not so ridiculous it would be ludicrous.

Oral surgery has been a part of the teaching program of some of this continent's leading dental schools for 50 years and more. I know of no medical school which has a department devoted strictly to the education and training of oral surgeons or oral surgery in North America. Who then is encroaching upon whose field? There must be some analogy here to the principle of squatter's rights.

Although various high-sounding reasons are offered by our medical friends for claiming that we dentists should not be doing oral surgery in its contemporary context, there is one basic underlying motivation which appears to us to be compelling them to take this stand: economics. And this, of course, can not be seriously considered as a valid objection to a curriculum of an institution of higher learning in our land.

We oral surgeons are quite aware that we must make our own struggle for recognition and survival on a local level as well as on a national front. But 64 oral surgeons constitute numerically an insignificant body when assailed by the medical profession. And herein lies the purpose of this letter: to awaken the dental profession to the fact that it is now threatened with the possible loss of one of its specialties by virtue of aggressive and arbitrary action on the part of the medical profession. Six thousand voices will make more impact than 64.

It is hoped, of course, that in a refined and intelligent society such as we claim today, a common meeting of the minds of the two professions in the spirit of round-table discussion will result in the amicable settlement of any major differences. This we are attempting to do. But be advised that we are at times met with refusal on discussions and at other times by unwilling listeners. There is a relatively small but very vocal group within the medical profession which is attempting to rally their brethren to the cause and apparently with some considerable success.

The legacy of oral surgery is ours. It is not clear to me how the dental educators in Canada feel about the matter. But how they feel is very important to the matter at hand. It also behooves the Canadian Dental Association to take a stand in a positive and forthright manner and rise to the defence of its offspring. The provincial licensing bodies must also realize their responsibility in terms of the dental practice acts. If the right of the dentist to perform surgery on the human jaws is validated and protected by law it is incumbent upon the provincial licensing bodies to fight for this right.

Belligerency has no place in this discussion. As a health service it is dentistry's responsibility to render aid in the area which is her domain. We do not ask for exclusion of our medical friends. There has always been overlapping of clinical fields and there always will be. This should be healthy for the professions and for the public. But in consideration of the aspiring young oral surgery resident let us as a profession set out once and for all the beliefs and the intentions which we hold in terms of this specialty. If apathy supervenes, the argument will end up being academic only.

A. E. Swanson, D.D.S., M.S.,
718 Granville Street,
Vancouver 2, B.C.

LIKES INTEGRATED FRENCH-ENGLISH JOURNAL

To the Editor:

Congratulations for your new policy with the May issue of the Journal. Your idea of mixing English and French articles is good. There should be no barrier in a scientific journal such as ours. You may contribute to making your readers more familiar with each others' language. But the résumés should be kept.

Once again congratulations for your forward-thinking and progressive policy. This is no place for narrow minds.

Marcel Hébert, D.D.S.,
Lecturer, Dental History,
McGill University,
Montreal, P. Que.

DENTAL FEES AND THE RIGHT TO STRIKE

To the Editor:

Dental services are presently provided on a fee for service basis. The dentist's remuneration depends on how many services per hour he performs to a standard that satisfies him. From this remuneration he pays all practice expenses. These include expenses involved in consultation, minor diagnostic services, and minor items of treatment. These are akin to those of the physician's practice. Here the similarity ends however. The patient who attends a physician goes to the office for consultation and minor treatment. For major diagnosis, radiographs and surgical operations he goes to hospital. Here he pays the physician, the hospital, and indirectly, the pharmacist. For the dental patient, however, all comparable services are provided out of the one fee. The effect is that dentists' fees appear to exceed those of physicians.

We should separate the expense of dental treatment from the fee so that patients may appreciate why dental care is a "high cost" service before the fee of the dentist is taken into account. Such action would also afford better protection against the effects of inflation or any arbitrary reduction of fees by governments if a medicare scheme were introduced. The only alternatives for the dentist would be acquiescence to whatever arrangement eventuates, strike action (which may prove illegal), or removal to another country (an economic and personal hardship).

I therefore recommend that dental fees be divided to indicate (1) the cost of drugs and materials, (2) hire of the operating room, and (3) the dentist's fee. This will prepare the ground for medicare. Government would pay these three items separately, only the third being paid directly to the dentist. This type of costing would also facilitate establishment of multiple operating room dental clinics at government expense. The dentist would then be free to render the treatment he considered best for the patient without any risk of being saddled with extra practice expenses if he requires additional time for treatment.

Fee for service may be appropriate under private enterprise. But it is disadvantageous under medicare where it is easier to negotiate with government on the basis of fee for time. This permits recognition of the slower or the more thorough and critical clinician. Further, this system removes the temptation to increase personal income through greater volume of treatment and resultant risk of impairment to quality of care.

One further thought. Individual dentists already have the right to withhold their services. But any mass action by Canadian dentists similar to the recent strike by Belgian physicians and dentists could likewise result in conscription of Canadian dentists into the armed forces, individual bankruptcy, and the risk of exposure to personal injury at the hands of an irate citizenry. Strike action offers no solution to the problems that arise in the event of medicare. The answer lies in collective organization of the profession and appropriate action prior to the advent of such a scheme.

T. D. G. Lyons, B.S.D. (Lond.), L.D.S., R.C.S. (Eng.),
22 William Street West,
Smiths Falls, Ontario.

The above is a condensed version of a rather more lengthy letter. Space limitations preclude printing the entire letter. (*Ed.*).

GRADE 3 ASSESSMENT OF DENTISTS

To the Editor:

This little class project came into my hands the other day and I thought it was a very cute little essay.

My daughter Sheila is eight and in Grade 3 at Queen Mary School in Peterborough. When I asked her how she spelled the big words, she explained that she had looked them up in the dictionary.

Perhaps other fathers and mothers in the profession would like to read a little girl's estimation of her father's work:

"My father works with an antiseptic sometimes. Other times he dose (*sic*) not. Often he gose (*sic*) up to the hospital. He is a dentist. He put in fillings and pulls out teeth. Sometimes he never gets paid. He goes to the hospital because the people are too sick to come to his office."

H. M. Yule, D.D.S.,
311 Rubidge Street,
Peterborough, Ontario.

dentistry in the news

The Association

ADVOCATE DENTAL SERVICES FOR AGED

The Canadian Dental Association has recommended that all provinces establish dental health programs for Old Age Assistance and Old Age Security Supplementary Allowance recipients. This and three other proposals were contained in a brief submitted early in May to the Special Committee of the Senate of Canada on Aging. The Association also advocated:

Dental health care programs for non-ambulatory aged persons to be developed locally by the dental profession in consultation with local health agencies;

Establishment of dental departments in all hospitals and institutions to provide dental services for their patients; and

Mandatory fluoridation of community water supplies.

Although concerned with dental needs of the aged, the brief reiterated the Association's policy that "the first aim of any dental services plan . . . must be to preserve the state of good dental health with which the normal child is born . . . The extension of coverage to older persons can be made only when it is evident that this can be done at no sacrifice to the care required by the youngest members of the population . . . Only by developing and fostering proper dental health habits in childhood can the foundation for good dental health in the oldest age groups be laid."

The Special Committee on Aging was appointed last year "to examine the problems involved in the promotion of the welfare of the aged and aging" population. Senator David Croll is committee chairman.

The Association's brief was prepared by a subcommittee of the Dental Services Committee and approved by the Executive Council.

1963 PRACTICE SURVEY BRINGS HIGHEST PERCENTAGE OF RETURNS

By the 15th of May, 2,634 returns to the C.D.A.'s third Survey of Dental Practice had been received, the Bureau of Economic Research has announced. The percentage response by province was: Newfoundland 46, Prince Edward Island 44, Nova Scotia 38, New Brunswick, 35, Quebec 34, Ontario 46, Manitoba 38, Saskatchewan 51, Alberta 48, and British Columbia 46 per cent. Total cross-Canada response was 43 per cent. This is the highest percentage of completed questionnaires received in any Canadian survey of dental practice.

The Bureau of Economic Research expresses appreciation to individual dentists who took the time and trouble to complete the survey questionnaire. Their efforts will arm the Association for another five-year period with facts and figures on dental practice.

ORAL CYTOLOGY BOOKLET ISSUED

The Canadian Dental Association has published a booklet for dentists on the cytolog-

Equipment, such as this new portable high-speed drill, developed by the Midwest Dental Manufacturing Company, may in future facilitate dental care for patients confined to hospitals, nursing homes or private residences. The 40-pound portable unit can operate at speeds up to 300,000 rpm and has a variable-speed foot control. The high-speed air turbine drill has an aspirator, coolant reservoir and six drawers for holding accessories and handpieces. The unit is mounted in a waterproof and shockproof case. Power is supplied by either a compressor or small nitrogen tank.

Canadian Science Fair winner André Bélanger of Rigaud, P. Que., (above) receives his C.D.A. award from Marcel Bourgon of the Université de Montréal. Canadian Science Fair winner Maryl Shaw Weatherburn of Ottawa (below) receives her C.D.A. award from Marcel Bourgon of the Université de Montréal.

ical smear technique for the detection of oral cancer. Entitled *Oral Cytology*, the brochure was prepared jointly by the Canadian Dental Association and the National Cancer Institute of Canada. Copies are available from national headquarters of the Canadian Dental Association.

Canada and the Provinces

SCIENCE FAIR WINNERS ANNOUNCED

Sixty-two contestants from 22 regional Science Fairs across the nation participated in the third Canada-Wide Science Fair held at the Université de Montréal, April 23-25. Winners of two Canadian Dental Association awards were Maryl Shaw Weatherburn, grade 12 student at Rideau High School, Ottawa, and André Bélanger, grade 12 student at Collège Bourget, Rigaud, P. Quebec.

This year's top award for girls went to Mary Allison of Morrisburg, Ontario, who won a C.D.A. award last year. Each year the boy and girl with the top award are sent to the International Youth Science Fortnight in London, England.

The Canadian Dental Association is one of the sponsors of the Canadian Science Fair's council. This year Roger Charette of Montreal represented the Association on the judging committee.

HOSPITAL DENTISTRY COURSE IN SCARBOROUGH

A two-day course in hospital dentistry will be presented in Scarborough, Ontario, General Hospital October 15-16, for dentists interested in hospital affiliation. The objectives of the course are to demonstrate how the patient can receive total health care through (1) co-operation between the dental general practitioner and dental specialist; (2) co-operation between the dental and medical professions; and (3) complete and effective utilization of all hospital departments, their medical and nursing staffs, laboratories and other facilities.

Early registration is desirable, as attendance at the course will be limited. The fee of $50 includes the cost of luncheons. Requests for further information should be directed to E. G. Bertrand, Scarborough General Hospital, 3050 Lawrence Avenue East, Scarborough, Ontario.

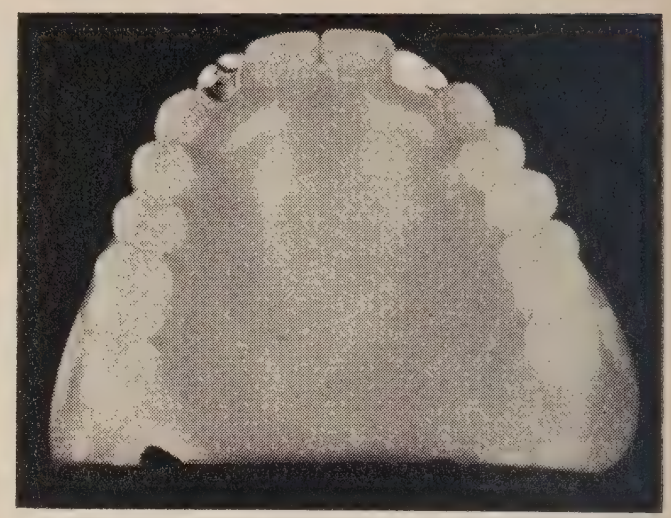
ONTARIO WELFARE COUNCIL SEEKS WIDER DENTAL BENEFITS

The Ontario Welfare Council intends to ask the provincial government to provide a full health insurance program for unemployed persons.

Labour union-backed resolutions to this effect were adopted by the annual meeting of the council on May 22.

Ottawa Police seek identity of dead woman

Ottawa police seek assistance from any dentist who can help to identify a woman who died in her room at Ottawa's Chateau Laurier Hotel on or about May 25, 1964. Death was due to an overdose of drugs, which apparently was self-administered. The deceased, a heavy obese female weighing 220 pounds, four feet 11 inches tall, was 50-60 years old. She had grey to light brown eyes and brownish undyed hair. The deceased had only one natural tooth — the lower right first molar. She also had a complete upper denture with open-face gold jackets on both artificial lateral incisors. Any reader who can supply the name and address of the person for whom this denture was prescribed or made is asked to contact R. J. Axcell, Chief Constable, Police Department, Ottawa.



Another unanimously passed resolution will press for including basic dental care in Ontario public welfare services and assistance for the blind, disabled, widows and unmarried mothers, and the aged.

WINNIPEG DENTURISTS SEEK CITY-SUPPORTED LABORATORIES

Winnipeg's civic Health and Welfare Committee has been asked to consider setting up denturist laboratories to provide welfare recipients with 'low cost' dentures. A brief containing the request was presented by G. N. Smith, president of the Manitoba Association of Dental Technicians, to the committee on May 4.

W. G. Campbell, secretary of the Manitoba Dental Association, who also appeared before the committee, warned that "at the moment the city could not enter into such an agreement because it would be completely illegal."

The committee did not take any immediate action on the request.

International Items

CATHOLIC MEDICAL MISSIONS SEEK CANADIAN DENTISTS

The Catholic Medical Mission Board in New York City seeks Canadian dentists who are willing to donate some time to working in clinics and hospitals operated in areas of Catholic missions. CMMB is a co-ordinating agency assisting professional personnel who

wish to serve the destitute sick throughout Latin America, Asia and Africa.

The board recently reported on the activities of American dentists who have volunteered their services in Haiti, Jamaica and Africa.

Further information on the Catholic Medical Missions may be obtained from its headquarters, 10 West 17th Street, New York City, 10011, U.S.A.

NEW ORAL THERAPEUTICS AND PHARMACOLOGY JOURNAL IN U.S.

The Williams and Wilkins Company, a Baltimore publishing concern, will issue a new bimonthly *Journal of Oral Therapeutics and Pharmacology* beginning in July. According to its editor, A. H. Kutscher of New York City, the new journal will be concerned with all aspects of clinical and basic oral therapeutics and pharmacology. L. E. Francis of McGill University dental faculty, Montreal, is a member of the editorial board.

ISAAC SCHOUR DIES

Isaac Schour, dean of the University of Illinois College of Dentistry and a renowned figure in American dentistry, died on June 5.

Dr. Schour is known for having laid the foundation for the analysis of growth rings in teeth as biological mirrors of general health. He also made major contributions in experimental studies on the growth of teeth and the related role of nutrition and the endocrine glands in their development. Dr. Schour was a leading authority on histology.

ORAL BIOLOGY GROUP MEETS IN CALIFORNIA, OCTOBER 5-9

Factors affecting bones and teeth in health and disease will be discussed at the 21st Annual Meeting of the American Institute of Oral Biology, Palm Springs, California, October 5-9. Speakers include W. D. Armstrong of the University of Minnesota, J. R. Cameron of the University of Wisconsin, Paul Goldhaber of Harvard School of Dental Medicine, R. S. Harris of Massachusetts Institute of Technology, and T. H. Bullock and M. R. Urist from the University of California at Los Angeles. Further information and application forms may be obtained from Mrs. Marion Lewis Meyer, executive secretary, 260 San Leandro Way, San Francisco, California, 94127, U.S.A.

ANAESTHESIOLOGY MEETING IN SAN FRANCISCO

A symposium on anaesthesia will be presented at the scientific session when the American Dental Society of Anesthesiology holds its Eleventh Annual Meeting at the Hilton Hotel in San Francisco, November 6-8. Panelists and their subjects include: Lyall Bishop, "The importance of adequate general anaesthesia training for the ambulatory patient in the dental office;" Carl Johnson, "Current trends in anaesthesia;" Stuart Cullen, "Fluothane (halothane) anaesthesia;" and Digbey Leigh, "Paediatric anaesthesia."

CANADIANS INVITED TO NEW ENGLAND MEETING

Canadian dentists have been invited to attend the 101st annual meeting of the New England Dental Society, October 7 and 8, at Forsyth Dental Center, Boston, Massachusetts. Further information may be obtained from C. T. Armen, secretary, New England Dental Society, 14 Sunapee Street, Newport, New Hampshire, U.S.A.

Dental Organizations

NEWFOUNDLAND DENTISTS PLAN CONVENTION

Members of the executive of the Newfoundland Dental Society met in Corner Brook on May 23 to formulate plans for the society's forthcoming annual convention, also to be held in Corner Brook later this year. Presiding at the meeting was Kira Obrazcova of Corner Brook, president of the provincial society. Also attending were Vice-President R. A. Downton, Secretary R. V. Windsor, and Provincial Registrar G. P. French, all of St. John's. Meetings were also held with members of the West Newfoundland dental group.

BROWN INSTALLED AS SAINT JOHN SOCIETY PRESIDENT

M. N. Brown was installed as president of the Saint John (New Brunswick) Dental Society at the society's May meeting. He

succeeds H. S. Cummings. Other newly elected officers are: L. G. Zed, vice-president; Monica Mooney, treasurer; and Mitchell Levine, secretary.

Two speakers were featured at the society's May meeting. J. Britt, a representative of a finance company, discussed the collection of fees. Dr. Levine outlined a cast post crown technique. The previous monthly meeting was devoted to a 'Ladies Night.'

SERIOUS DENTIST SHORTAGE FORECAST IN QUEBEC

Only one new dentist will be available for every 10,000 new citizens added to Quebec's population between 1971 and 1981 if present population trends and dental school graduation capacities are maintained. This warning was recently given by the Recruitment Committee of the College of Dental Surgeons of the Province of Quebec. As a result the college instructed its Commission on Education to intensify study of the training of dental hygienists and dental assistants and methods of instructing dentists in the better use of such personnel. The college will also prepare a memorandum for the provincial government concerning the needs and social aspects of the dental profession in its endeavour to provide the public with adequate oral health care.

MONTREAL CLUB HEARS CRITICISM OF C.D.A.

The April meeting of the Montreal Dental Club was entirely devoted to organizational aspects of the dental profession.

President J. M. Chamard reported on a resolution concerning fixed fees, pro ration of fees, and quality of services. This resolution had been submitted by the Montreal club to the College of Dental Surgeons of the Province of Quebec.

G. M. Dundass described college activity with reference to Section 51 of the Quebec Dental Act. This section relates to qualifications of dental laboratory technicians.

A. W. Oliver commented on the outcome of a resolution concerning Dr. Chamard's candidature for the position of secretary of the Canadian Dental Association.

E. J. Siegel of Toronto was the guest speaker. In an address entitled "Control of dentistry, dental service corporations, and the Canadian Dental Association," Dr. Siegel presented his views on some of the recent actions taken by organizations of the dental profession. Dr. Siegel was critical of dental service corporations because of their "inevitable concomitants of fixed fees, quality control, and prior authorization." Dr. Siegel also claimed that C.D.A. policies do not reflect the opinions of many practitioners and "that the C.D.A. does not allow . . . opposition voices to be heard through its organ, the *Journal of the Canadian Dental Association.*"

Dr. Siegel was accompanied to Montreal by J. H. Johnson and R. M. Singer, both of Toronto.

AMENDMENTS TO PROPOSED ONTARIO MEDICARE SCHEME SOUGHT

Representatives of the dental profession have suggested several amendments in order to correct discrimination against dentists under Ontario's proposed medical services insurance plan (Bill 163). The most important of these deals with oral surgical services which may now be legally performed by medical or dental practitioners but which will not be compensable under the plan if performed by dentists.

The Ontario Dental Association and the Royal College of Dental Surgeons of Ontario presented a joint brief on the proposed measure last November. Bill 163, having proceeded to second reading, is now before a Committee of Enquiry.

NEW HOSPITAL REGULATIONS FOR ONTARIO DENTISTS

Ontario's Joint Working Committee on Public Hospitals Act Regulations has accepted proposals advanced by the Royal College of Dental Surgeons of Ontario for new regulations governing the provision of dental services in Ontario hospitals. Once the new draft regulations come into force, a dentist becomes entirely responsible for deciding upon the necessity to admit a patient. At the same time, the requirements of the Public Hospitals Act will continue to be satisfied by the joint admission order of a dentist and a physician who are members of the hospital staff.

Another new section entitles a dentist to write or telephone all necessary orders for patients he has admitted to hospital.

The Joint Working Committee has representation from the Ontario Hospital Services Commission, the Ontario Medical Association, the Ontario Hospital Association and the Department of Health for Ontario. It is anticipated that the Royal College of Dental Surgeons will be asked to nominate a dental representative to the committee.

DUNN CRITICIZES ONTARIO BILL 163

W. J. Dunn, registrar-secretary-treasurer of the Royal College of Dental Surgeons, sharply criticized proposals for medical services insurance in Ontario contained in Bill 163 when he addressed the annual meeting of the Ontario Chapter, Canadian Society of Dentistry for Children, on May 9. Because this bill is confined to medical insurance, it discriminates against oral surgeons whose patients are denied benefits unless oral surgery is performed by medically qualified practitioners. If compensation is to be allowed for oral surgery, all legally qualified practitioners should be reimbursed, Dr. Dunn declared. The bill is now the subject of an enquiry by the Hagey Committee appointed by the government of Ontario.

F. B. Burns of Toronto was named president of the Ontario Chapter, C.S.D.C. He succeeds Robert Rapp of Ann Arbor, Michigan. K. W. Davey of Toronto is president-elect; G. E. Burgman of Niagara Falls is vice-president. E. G. Sonley of Toronto continues as secretary-treasurer.

ONTARIO ASSOCIATION INSTALLS E. E. JOHNS

Kingston orthodontist E. E. Johns was installed as president of the Ontario Dental Association on May 13. Born in China and educated in Hamilton, Ontario, Dr. Johns is a University of Toronto graduate. He has worked in the cleft palate division of the Hospital for Sick Children, Toronto, and has conducted orthodontic research in Greece under a National Health Grant.

E. E. Johns

Other members of the 1964-65 Board of Governors are W. W. Philp, immediate past president; M. G. Boyes, president-elect; and F. H. Shepherd, archivist, all of Toronto. District representatives are H. N. Beach of Ottawa, District 1; G. F. Rogers of Huntsville, District 2; W. J. Spence and J. Sherman of Toronto, District 3; G. K. Chapman of Fort Erie, District 4; J. B. Taylor of London, District 5; W. A. Burgman of Preston, District 6; A. R. Kaukinen of Sudbury, District 7; and S. P. Smith of Port Arthur, District 8. E. T. Guest of Capreol is an additional member of the board.

D. J. E. Mitchell of Toronto is chairman of the Dental Public Health Committee. R. S. Woollatt of Toronto is chairman of the Benevolence Committee. Re-appointed as secretary-treasurer and editor respectively were Mrs. W. C. Durham and A. W. Lindsay, both of Toronto.

WHYTE IS PRESIDENT OF OTTAWA SOCIETY

J. A. Whyte was recently elected president of the Ottawa Dental Society. He succeeds E. J. Fox. H. F. Biewald was named secretary.

DENTAL NURSING ALUMNAE MEET IN TORONTO

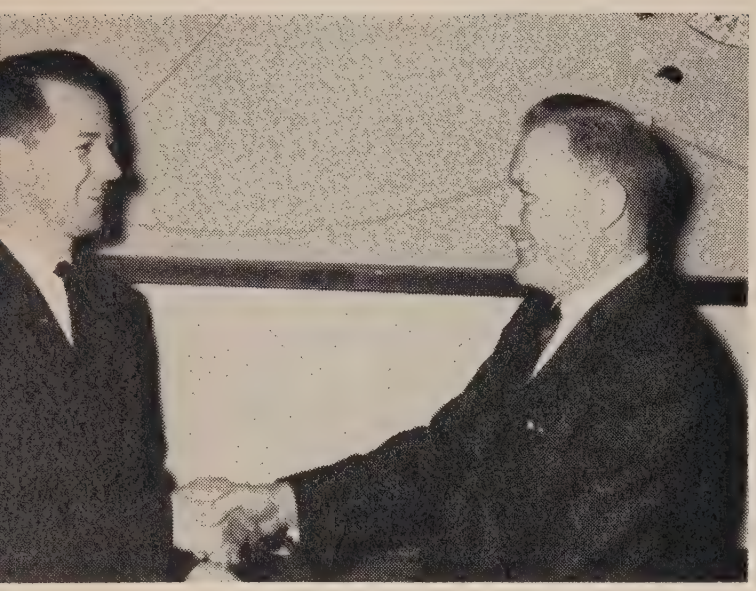
Graduates of the former University of Toronto course in dental nursing held a reunion at the Four Seasons Motor Hotel, Toronto, on May 10. Seventy-five alumnae attended the meeting organized by the University of Toronto Dental Nurses' Alumnae Association of Canada.

ALBERTA ASSOCIATION PRESENTS BRIEF TO PROVINCIAL CABINET

Led by Immediate Past President D. C. Deedrick, representatives of the Alberta Dental Association on April 21 met with Premier E. C. Manning and 12 other ministers of the Alberta government. Purpose of the meeting was the presentation of a brief from the dental profession to the cabinet. Distribution of dentists, hospital services, prepayment plans, auxiliary personnel and dental research were some of the topics discussed at the meeting. Responding to a request for revision of present fluoridation legislation, Premier Manning replied that though he and most cabinet ministers were personally in favour of the measure, his government was bound to uphold minority rights. Therefore a two-thirds majority requirement in fluoridation plebiscites would have to remain in force.

ALBERTA DENTISTS NAME NEW EXECUTIVE

M. J. Lipkind of Calgary was elected presi-



President K. A. Burnham (l.) of the Edmonton and District Dental Society is congratulated at the recent induction of new society officers by retiring president D. H. MacDougall.

dent of the Alberta Dental Association when that organization held its 61st annual meeting in Edmonton, April 2-4. He succeeds D. C. Deedrick of Lacombe. A 1943 graduate of the University of Alberta, Dr. Lipkind served as a dental officer in the Canadian Dental Corps until 1946 before entering private practice in Calgary. He is a past president of the Calgary and District Dental Society.

Other members of the executive are G. V. T. Clarke of Edmonton, vice-president; D. C. Deedrick of Lacombe, immediate past president; and G. E. Decker of Edmonton, registrar-secretary-treasurer. Named as directors were D. C. Deedrick, R. A. Gray, A. H. Lane, L. G. Mandin and R. L. Rasmussen.

EDMONTON SOCIETY STAGES COMBINED UNIVERSITY AND HOME TALENT DAY

On April 14 the University of Alberta dental clinic was the site of a combined "University Day and Home Talent Day" staged by the Edmonton and District Dental Society. The hundred dentists who attended this event were welcomed by Dean H. R. MacLean.

Clinical and television presentations during the morning covered endodontic principles and procedures (D. M. Collinson), dental postgraduate opportunities at the University of Alberta (R. V. Blackmore) and fine pin amalgam restorations (G. H. Gibb).

Motion pictures depicting management of the edentulous patient; audio analgesia; root resection; high-speed instrumentation; cementation of crowns, bridges and inlays; gold foil technique; and the role of the dental hygienist were shown concurrently.

Chairside clinical demonstrations were conducted during the afternoon on class III gold foil restorations (D. H. MacDougall), pin amalgam restorations (W. C. Meyer), and Bulyea class IV restorations (J. J. Hardy),

Ten Calgary dentists (E. F. Allison, J. C. Waddell, M. J. Komlodi, A. G. Kluzak, W. P. Hanna, C. T. McNichol, G. K. Minty, A. A. Taylor, J. Copeland and B. G. Saik) and 11 Edmonton dentists (E. A. Stang, P. D. MacRae, L. J. Heppler, J. Potter, G. B. Davidson, W. Zacherl, R. S. Van Alstine, M. G. Strelioff, J. Tuba, S. S. Kucey and R. C. McClelland) presented table clinics covering a variety of topics. These were supplemented by another 13 table clinics presented by senior dental students.

The program concluded with a dinner meeting to which senior students were invited as guests of the local dental society. Featured essayists at the dinner were R. B. Cameron (Relation of operative procedures to periodontal health) and G. H. Gibb (Ways to improve operative dentistry).

BURNHAM IS PRESIDENT OF EDMONTON SOCIETY

Edmonton dentists selected public health as the topic of their final meeting for the current season on May 5. Guests speakers at the Edmonton and District Dental Society on this occasion were Edmonton city medical health officer, G. H. Ball, and city dental director, T. J. Gavriloff.

K. A. Burnham was named president for 1964-65. Elected also were J. M. Calvert, president-elect; J. Sikora, secretary; R. S. Margolis, treasurer; G. A. Deane, social convener; and R. C. Sills, publicity chairman. K. L. Stensrud and A. C. Thompson were named directors.

KLUZAK HEADS CALGARY SOCIETY

Joseph Gibilisco of Rochester, Minnesota, recently addressed a meeting of the Calgary and District Dental Society. Dr. Gibilisco, who is head of the dental section of the Mayo Clinic, discussed diagnosis and treatment of atypical dental and facial pain and temporomandibular joint disturbances.

A. G. Kluzak was installed as president of the Calgary society. He succeeds A. D. Spar-

Recently elected officers of the Calgary and District Dental Society are (above l.to r.) D. M. Kovitz, E. W. P. Luxford and B. G. Saik; (below l. to r.) A. D. Sparrow and A. G. Kluzak.

row. Elected with Dr. Kluzak were B. G. Saik, president-elect; E. W. P. Luxford, secretary; and D. M. Kovitz, treasurer.

DENTURE CLINICS PROBABLE IN BRITISH COLUMBIA

The College of Dental Surgeons of British Columbia has announced plans to establish denture clinics at various centres in the province. The first three will be established in downtown Vancouver, in the Burnaby-New Westminster area, and in Victoria. The clinics will be headed by dentists who will supervise the work of trained personnel.

PETTAPIECE HEADS B. C. ASSOCIATION

H. G. Pettapiece of Parksville has been elected president of the British Columbia Dental Association for 1964-65. He succeeds O. F. Wright of Vancouver. Other members of the association's executive are: D. E. Waller of Prince George, president-elect; S. Margolese of Vancouver, treasurer; and Margaret Maclean of Vancouver, secretary. P. Boyle, C. E. Craig, J. D. McInnis, A. A. Miller, G. C. Russell, R. W. Davis, W. H. Letham, G. C. Walkey, J. F. F. Mykietyn and A. E. Swanson were named directors.

Canadian Dental Schools

DENTISTS AND HYGIENISTS GRADUATE FROM DALHOUSIE

Ten dental students and eight dental hygiene students were awarded degrees and diplomas at Dalhousie University's annual convocation exercises, May 14.

Miss J. M. Batchilder of Georgetown, Prince Edward Island, was awarded the Katie Lubetski Memorial Prize in dental hygiene. Other prize winners among the graduating dental students included Miss J. C. Atkinson of Carlisle, England; J. R. Robertson of Halifax; A. Burry of Corner Brook, Newfoundland; and J. E. Grasso.

PINDBORG IS 1964 BOX MEMORIAL LECTURER

Professor J. J. Pindborg, of the Royal Dental College, Copenhagen, Denmark, will deliver the 1964 Harold Keith Box Memorial Lecture at 8.15 p.m. on Monday, October 26 in the auditorium of the Faculty of Dentistry, University of Toronto. Dr. Pindborg's subject will be "Oral cancer—from an international point of view." Members of the dental profession have been invited to attend this important lecture.

2 3 4 5

Dental officers who were recently promoted to the rank of acting lieutenant-colonel in the Royal Canadian Dental Corps are (1) F. D. Charman, (2) R. A. Fell, (3) H. R. Kettyls, (4) J. A. Lauziere, and (5) D. H. Protheroe.

McGILL AND MONTREAL DEBATE ON DENTAL HEALTH INSURANCE

"Dental health insurance definitively and completely can improve the general state of dental health in the Province of Quebec" was the subject of the annual debate between the dental faculties of McGill University and the Université de Montréal. The McGill team was successful in upholding the affirmative.

Royal Canadian Dental Corps

CORPS OFFICERS AT O.D.A. CONVENTION

The Director General of Dental Services was represented by Col. A. C. Leman when the Ontario Dental Association held its 97th Annual Convention in Toronto. Maj. P. S. Sills presented a clinic at the convention on "Complete denture postoperative problems."

COL. ROGER INSPECTS EUROPEAN UNITS

On May 5 Col. A. T. Roger, command dental officer for Central Command, began a tour of inspection of European-based units of the Royal Canadian Dental Corps. Col. Roger visited No. 35 Field Dental Unit at Metz, France, No. 4 Field Dental Company at Soest, Germany, and, following a brief period of leave in Rome and Paris, completed the official tour with a visit to the Canadian Joint Staff in London, England.

CAPT. ROCHEFORT TO CYPRUS

A dental sub-section, consisting of Capt. J. M. L. Rochefort of St. Fidèle, P. Quebec, a dental assistant and a laboratory technician, was sent to Cyprus early this spring to serve as part of the Canadian contingent of the United Nations Force. Capt. Rochefort is the first dental officer of the Royal Canadian Dental Corps to serve with the United Nations in Cyprus. Twenty-two officers are currently located outside of Canada. Others are stationed in various regions of West Germany, France and the Middle East.

OFFICERS RETURN FROM MIDDLE EAST

Two of three Canadian dental officers serving in the Middle East have recently returned to Canada. The former senior dental officer of the Middle East dental detachment, Maj. R. J. K. Pyne, is now at R.C.A.F. Station, Comox, British Columbia. He was replaced by Maj. T. C. Gaudet, who previously served at R.C.A.F. Station, Chatham, New Brunswick. Capt. R. J. Paturel has also returned from the Middle East and has been posted to No. 12 Dental Company, Halifax. He was replaced by Capt. P. A. A. Dailyde who previously served at H.M.C. Dockyard, Esquimalt, British Columbia.

STUDENT OFFICERS TOUR FRANCE AND GERMANY

For the second consecutive year a party of student officers from five Canadian dental schools received Air Force indoctrination by visiting the various wings of No. 1 Air Division in Europe. The 16-day tour was conducted by Lt.-Col. S. G. Bagnall of the Dental Directorate.

The 15 student officers, who are members of the Dental Officer Subsidization Plan, returned to Canada on June 26 to continue their second phase training at the Royal Canadian Dental Corps School, Camp Borden, Ontario, and at H.M.C.S. Cornwallis and H.M.C.S. Stadacona in Nova Scotia.

MAJ. HARRINGTON COMPLETES PUBLIC HEALTH COURSE

Maj. W. H. Harrington of Dewdney, British Columbia, received his diploma in dental public health from the University of Toronto in May. Maj. Harrington has since been posted to the Directorate of Dental Services in Ottawa.

SUBSIDIZED OFFICERS ARE POSTED

Seven members of this year's graduating class of the Faculty of Dentistry, University of Toronto, have been posted to the following locations: Capt. R. W. C. Adams, R.C.A.F. Station, Uplands, Ontario; Capt. R. H. Crowson, R.C.D.C. School, Camp Borden, Ontario; Capt. N. Goldberg, No. 12 Dental Company, Halifax; Capt. H. Griesbach, Camp Petawawa, Ontario; Capt. J. A. Nattress, Fort Osborne Barracks, Winnipeg; Capt. V. Rausch, R.C.D.C. School, Camp Borden, Ontario; and Capt. T. C. Tervit, R.C.A.F. Station, Trenton, Ontario. All seven were enrolled at university under the Corp's dental officer subsidization plan.

EXCHANGE POSTING APPROVED

Dental officers will be exchanged this summer between the Royal Canadian Dental Corps and the United States Army Dental Corps. Maj. P. S. Sills will serve for a two-year period at Walter Reed Medical Center in Washington. He will be replaced at Camp Borden by Maj. D. H. Newell of Springfield, Illinois.

PROFESSIONAL TRAINING

The importance of continued training for dental officers is demonstrated by the following list of short courses attended during the past few months: at U. S. Naval Dental School, Bethesda, Maryland, Capt. P. P. Morin, Complete Dentures, February 10-14, and Capt. B. G. Johnston, Crown and Bridge Prosthodontics, April 6-10; at University of Michigan, Maj. J. M. A. Donely, Crown and Bridge Prosthodontics, March 2-13, and Lt.-Col. W. W. Anglin, Oral Surgery, March 30-April 10; and at the University of Toronto, Lt.-Col. R. E. Brown, Endodontics, February 19-21, and Lt.-Col. G. E. Windsor, Occlusal Correction, May 4-8.

ELEVEN OFFICERS TAKE RELEASE

On completion of their fixed period of service the following dental officers have taken their release from the Royal Canadian Dental Corps: Capt. J. S. E. Doiron, Moncton, New Brunswick; Capt. A. G. Garden, Medicine Hat, Alberta; Capt. R. J. Gillis, Campbellton, New Brunswick; Capt. K. S. M. Mathers, Ottawa; Capt. J. J. Mitchinson, Niagara Falls, Ontario; Capt. M. Petryk, Calgary, Alberta; Capt. P. P. Prud'homme, Loretteville, P. Quebec; Capt. J. R. Senechal, Chicoutimi, P. Quebec; Capt. C. G. Travis, Ottawa; Capt. D. A. Warrick, London, Ontario; and Capt. J. B. Wilcock, Richmond, British Columbia.

Economics

C.D.A. STAFF DENTAL PLAN COMPLETES SECOND YEAR

Twenty-three out of 26 eligible persons received dental services under the Association's headquarters staff dental plan in 1963, according to the Association's Bureau of Economic Research. The plan covers 13 employees, five wives and eight children.

Twelve patients had clinical examinations and prophylaxes; 14 had 32 radiographs; 15 had 54 amalgam restorations. Four patients received periodontal services, two had orthodontic treatment and one had oral surgical treatment.

The total cost of dental care for the employees and their dependants was $1,622. Of this the Canadian Dental Association paid $1,089 — $84 for each employee eligible for services under the plan. The average cost per person receiving dental care was $71.

Costing the plan the most money were crown and bridge prosthodontics ($316), orthodontics ($248) and diagnostic and preventive services ($192). All other services combined (operative, prosthetic, surgical and periodontal) came to $333.

The same number of persons were covered in 1963 as in 1962, but there was some turnover of staff. Three more persons received dental services in 1963, than in the first year of the plan's operation.

Patients received more examinations, radiographs and prophylaxes in 1963. This may have been because in the second year the plan paid for these services twice a year. There was also an increase in operative services — more than twice as many amalgam and silicate restorations were received.

The total cost of dental services was $215 more in 1963 than in 1962. Cost of the plan to the Association rose steeply from $696 to $1,089. This increase occurred because the total cost of dental services rose: the plan covered two rather than one routine examination; and the deductible was reduced from $25 to $10.

The average total cost for dental care per patient was only 17 cents more in 1963. The cost to the C.D.A. per employee was up by $30.

Three developments are noted since the plan's inception: (1) patients who previously did not receive regular dental care now seek treatment for accumulated defects; (2) patients who previously postponed elective services now seek this care; and (3) patients who previously received regular care now obtain a higher quality service.

The plan, operated through the Bureau of Economic Research, is closely supervised by the Association's Dental Services Committee.

SASKATCHEWAN COMMITTEE INVESTIGATES PREPAID SERVICES

The College of Dental Surgeons of Saskatchewan has appointed a committee to make a study and investigation of prepaid dental services, dental service corporations and related matters.

ALBERTA DENTAL SERVICE CORPORATION LEGISLATION UPDATED

At the last sitting of the Alberta Legislature, the Alberta Dental Association Act was amended giving the association the right to set up a dental service corporation. The amendment will come into effect July 1.

In the meantime, the Alberta Dental Association has incorporated an Alberta Dental Service Corporation under the Societies Act.

The *Edmonton Journal* (March 21) reports that, "On several occasions during the present sitting of the legislature, cabinet ministers have stated they hope dentists will introduce their own prepayment plan and thus avoid the necessity of including dental treatment under the Alberta Medical Plan."

MUTUAL OF OMAHA INTRODUCES DENTAL COVERAGE IN ALBERTA

Mutual of Omaha introduced dental coverage to the residents of Alberta during the second enrolment period for the Alberta medical care plan. Dental coverage was offered as one of the benefits of a policy providing benefits for dental and extended health services not being included as part of the Alberta medical plan. Benefits included certain oral surgery and periodontal procedures. It is too soon to tell how this particular coverage has been received.

This is the company's first step in offering dental coverage. The program will be extended elsewhere in Canada in due course.

1963 REPORT OF ONTARIO DENTAL WELFARE PLAN

The Ontario Dental Welfare Plan had a monthly average of 25,238 children (dependants of Mothers' Allowances recipients) eligible for dental services during 1963. One-third of these children utilized the benefits of the plan. The average cost of dental service, based on the Ontario Dental Association fee guide, was $29.96 with the highest costs occurring in the 14-17-year old group ($35.82). Dentists participating in the plan are paid two-thirds of the O.D.A. fee schedule. Canadian Dental Service Plans Incorporated administers the plan for an average of 3.67 cents per eligible recipient per month.

NEW DENTAL GROUP OPPOSES SERVICE CORPORATIONS

An organization that opposes dental service corporations has been formed in Toronto. Called the Canadian Council for Dental Information, this organization has sent literature to every dentist in Canada declaring that "the future of dentistry is at stake at this very moment. The emergence of the dental service corporation poses a threat to the livelihood of every dentist and a challenge to his right to treat his patients according to his best professional skill and judgement."

The council states that it "is not intended to parallel or supersede any existing dental organization." Membership in C.C.D.I. costs $25 a year. The president is D. C. Clee and the secretary is Jocelyn Zuck, both of Toronto. (See also editorial comment in this issue of the Journal.)

Fluoridation

QUARTER MILLION HAVE NATURAL FLUORIDES

Almost a quarter million Canadians living in 153 communities are served by water supplies with a natural fluoride content of 0.7 parts per million or more. This figure is according to a new compilation by the Health League of Canada. Only four provinces have significant naturally-fluoridated waters: Alberta, Saskatchewan, Manitoba and Ontario.

With the addition of 1.8 million people in 1963, it is estimated that just under 4 million Canadians are served by water systems with fluoride added mechanically.

FLUORIDE REDUCES OSTEOPOROSIS IN AGED

"Bone fractures through accidental falls, in older persons, may be reduced as dramatically as tooth decay in the young—through fluoridation." So said Harvard University's internationally renowned nutritionist F. J. Stare in recent Ottawa addresses to the House of Commons' Committee on Health and to the National Research Council of Canada. Besides its anticariogenic action, fluoride helps to prevent osteoporosis, a very common affliction in aging, particularly in females after the menopause, Dr. Stare declared.

FLUORIDATION TO START IN NEW YORK CITY THIS YEAR

Official approval for fluoridation of water supplies came to New York City in December 1963. The City Council and Board of Estimate approved the measure more than ten years after the Board of Health started its fight for fluoridation in 1952. Commenting on this action, Mayor Robert F. Wagner, a supporter of fluoridation, said, ". . . there is no doubt that the overwhelming weight of competent scientific information in the nation and in New York City itself, is that water fluoridation is effective, safe and urgently needed." Eight and a half million persons will benefit and it is believed that many other communities will be influenced by New York's action.

AUSTRALIA TO BEGIN FLUORIDATION

Sydney, Australia, will begin fluoridating its water supply within the next few months. This action will bring the total number of Australians receiving fluoridated water to over one-fourth of the entire population.

Public Health

CHAPDELAINE APPOINTED MONTREAL DIRECTOR

Roger Chapdelaine has been appointed superintendent of the Division of Dental Hygiene in the Montreal health department. He succeeds Clarence Bouillon. A 1947 graduate of the Université de Montréal, Dr. Chapdelaine has been with the Montreal health department for the past 16 years, latterly in charge of several dental clinics.

DENTIST HEADS MANITOBA PUBLIC HEALTH ASSOCIATION

C. H. McCormick, director of dental services for the province of Manitoba, was recently elected president of the Manitoba Public Health Association for the 1964-65 term of office. Dr. McCormick has been an active member of the Public Health Association, having served as chairman of the General Section, program and social convener for several recent annual conferences.

FLUORIDE PHOSPHATE SOLUTION A PROMISING CARIES PREVENTIVE

Highly encouraging preliminary results are reported from a test of the caries-reducing potential of an acidulated fluoride-phosphate solution in British Columbia school chil-

dren. One thousand grade 1 children in Courtenay and Nanaimo participated in this British Columbia Health Branch research project last year. Five times during the year half of the children brushed their teeth with the fluoride-phosphate solution while the other half used distilled water. Brushing was supervised in the classroom. The study continues this year to check further progress.

book reviews

PROFILE OF A PROFESSION: A History of the Michigan State Dental Association

R. M. Warner. Detroit, Wayne State University Press. 1964. 296 p. Illus. $7.95

The Michigan State Dental Association, organized in January 1856, has functioned without interruption since that date, a record unsurpassed by that of any other state society in the United States. This association has always been a forward-looking organization, often giving leadership to American dentistry.

This book relates in detail the development of the profession from the earliest days of dentistry in Michigan to the present. At a time when the great majority of dentists were itinerant men with little apprenticeship training, but extravagant advertising ability, the association adopted true professional objectives. A code of ethics was formulated which had to be signed for admittance as a member. Non-adherence meant loss of membership.

The history of the association illustrates the tireless efforts over many years in attaining the three foundation stones of a profession, namely: a proper organization, a professional school and a journal.

The association began with 19 members. Growth in numbers was slow owing to strict adherence to professional attitudes among its members. Several periods of re-organization occurred. Transportation was difficult and several local organizations developed within the state. This situation was finally solved by creating district societies as constituents of the state association. True, some of the districts were weak and had few dentists, but the parent body bent its energies in strengthening the weaker ones. The district arrangement has functioned well, making the parent body strong.

The dental school was established in 1875 at the University of Michigan with Jonathan Taft of Cincinnati as dean — a well and favourably known dentist of his time. The association had found the position difficult to fill because extremely few dentists in Michigan had any formal dental education. Three or four dental schools existed in the east but few graduates of these schools found their way to Michigan. At the time schools were being established which were for the most part commercial ventures. The association aimed to establish a dental school as part of the state university. Farsightedness is shown in the attitude because association members, for the most part, were not university graduates. After much discouragement over a period of years the association finally succeeded in getting the legislature to provide funds for the establishment of a 'College of Dental Surgery.' And thus the dental school was established.

The attainment of the third objective came much later. The association felt the need of a publication to disseminate the proceedings of its meetings. Dissatisfaction existed respecting publication in the existing private journals. After some abortive attempts the *Journal of the Michigan State Dental Association* became a reality in May 1932.

Over the years the association fought a continuing battle for legislative measures befitting professional standards. The securing of a dental act in 1883 was preceded by several years of intensive activity. Amendments to the original legislation, respecting such matters as the method of appointments to the examining board and control of advertising, have required considerable effort by the association.

Dental public health has always been supported with strength in Michigan. "As early as 1864 the Association began its efforts in behalf of oral hygiene with the publication of popular essays on the teeth and their care." The continuing activities of the association eventually resulted in the establishment of a dental health bureau in the state

health department. It is notable that when the state did not provide sufficient funds for the salary of the director of the bureau, the association subsidized the position from the time of its establishment in 1926 until 1938 when the state agreed to make up the necessary amount.

Legislation for the registration of hygienists was obtained in 1919. A second school of dentistry was established in 1932 at University of Detroit. Dentistry in Michigan has been the fortunate beneficiary of financial assistance. Both the James Couzens' Children's Fund and Charles Stuart Mott Foundation furnished support to dental programs for children. The W. K. Kellogg Foundation has supported dental health programs and postgraduate education, having spent approximately $1½ million on dentistry in Michigan to date.

The dental profession in Michigan has a good record and this book tells the story well.

D. W. Gullett

THE YEAR BOOK OF DENTISTRY (1963-1964 Year Book Series)

S. D. Tylman, D. A. Keys, J. W. Knutson, R. E. Moyers, H. B. G. Robinson and C. W. Waldron. Chicago, Year Book Medical Publishers, Inc. 511 p. Illus. $8.25

The *Year Book of Dentistry (1963-1964 series)* has reviewed and abstracted 292 journal articles dated from September 1963 to August 1964. There are reviews from all major clinical fields including: diagnosis (19), endodontics (11), periodontics (24), oral medicine (14), caries (8), public health (32), orthodontics (50), surgery and pathology (44), operative dentistry (47), crowns and bridges (13), removable prosthesis (14), and research (16). The text of 498 pages is well printed and clearly presented in seven major sections.

The sectional editors are to be commended for the quality of the abstracts. The articles personally known to this reviewer are truly and well reported. The editorial comments, where they are found, are worthy additions to the text. Although this reviewer does not always concur with the editorial comments, they are helpful in assessing the article. All future abstracts should be accompanied by such comments. This would enable persons unfamiliar with the literature to understand better the relative importance of the article.

The editors should extend the scope of their reading. The relative number of North American articles (230) and total foreign articles (62), suggests a rather parochial attitude or a dissatisfaction with the foreign literature that is not warranted. The sections of orthodontics, surgery and pathology, crowns and bridges, and research are most noticeable in this regard.

One wonders if the non-dental literature important to the practising dentist has been well and truly covered when so few articles (25 out of 292) are taken from non-dental journals. The lack of articles dealing with the systemic use of antibiotics is most noticeable and contrasts with the commendable coverage given to oral cytology.

If the Year Book is directed to the general practitioner, the publisher should re-examine the space allocated to the various sections with regard to the practitioner's particular needs. The large number of pages (105) assigned to orthodontics would seem disproportionate to those assigned to caries (9), diagnosis (19), endodontics, periodontics, oral medicine (49) and removable prosthesis (30).

The section title of research is misleading. With the exception of two articles this section would in fact be more reasonably titled dental materials.

The text is recommended for serious reading by all dental practitioners. It would be particularly helpful as a beginning outline for group discussions or seminars in study clubs or journal clubs. This text should be a necessary part of any continuing education program.

F. J. Marshall

ACCEPTED DENTAL REMEDIES, 1964

American Dental Association, Council on Dental Therapeutics. Ed. 29. Chicago, American Dental Association. November, 1963. 220 *p.* $3.00

Accepted Dental Remedies (1964 edition) is published under the supervision of the Council on Dental Therapeutics of the American Dental Association.

This book has become the accepted handbook on dental therapeutics in the United States and Canada. Information contained within the book is essentially accepted by the Canadian Dental Association. This particular edition, as usual, is highly informative as to both new and old drugs, and contains a list of all currently acceptable drugs for use in dental therapeutics. Such a list becomes important when one realizes that there are 25,000 drugs currently on the Canadian market, some of them not acceptable in dental therapeutics.

Accepted Dental Remedies is written for

the practising clinician rather than the student of pharmacology. This gives clarity to the work because the clinician is spared extensive pharmacological details. Instead, he readily finds the pertinent information that is needed for the administration of the limited number of drugs which he uses.

The book emphasizes the importance of a knowledge of those drugs that may be administered by the physician so that there is no overlapping of therapy which may result in serious complications. This is becoming more important considering the number of patients currently being treated with tranquillizers, anticoagulants, sedatives and miscellaneous substances.

Emphasis is also placed on the importance of the medical enquiry on the part of the dentist so that he may prepare his patients prophylactically for the control of tensions, bacteraemias and other situations that may arise.

Accepted Dental Remedies deals very clearly with the main groups of drugs that are at our command, making it possible to determine the use of each drug, its mechanism of action, its contra-indications, its toxicity and possible side effects.

No drugs should be administered without a thorough knowledge of their total possible effects. Since *Accepted Dental Remedies* states these clearly every dentist should have this volume as his guide.

L. E. Francis

additions to the library

AAS, E. Hyperplasia gingivae diphenylhydentoinea; a clinical, histological, and biochemical study. (Acta Odontologica Scandinavica, Vol. 21, Sup. 34.) Stockholm, 1963. 142 p. illus.

AMERICAN DENTAL ASSOCIATION. Guide to dental materials, Ed. 2, 1964. 159 p. illus. $2.50

BERGLAND, O. The bony nasopharynx; a roentgen-craniometric study. (Acta Odontologica Scandinavica, Vol. 21, Sup. 35, 1963.) Stockholm. 137 p. illus.

BOHN, A. Dental anomalies in harelip and cleft palate. (Acta Odontologica Scandinavica, Vol. 21, Sup. 38.) Stockholm, 1963. 109 p. illus.

BRAUER, J. C. and RICHARDSON, R. E. The dental assistant. Ed. 3. Toronto, McGraw-Hill, 1964. 715 p. illus. $10.30

BRILL, N. The gingival pocket fluid; studies of its occurrence, composition, and effect. (Acta Odontologica Scandinavica, Vol. 20, Sup. 32.) Copenhagen, 1962. 115 p. illus.

DINGMAN, T. M. and NATVIG, P. Surgery of facial fractures. Philadelphia, Saunders, 1964. 380 p. illus. $24.30

ELLIS, J. R. ed. Methods of learning and techniques of teaching; the proceedings of the Second Annual Conference of the Association for the Study of Medical Education, 15th-16th October, 1959. London, Pitman Medical Pub. Co. Ltd., 1959. 145 p. illus.

GREENE, N. M. ed. Clinical anesthesia for emergency surgery. Philadelphia, F. A. Davis Co., 1963. 162 p. illus. $6.00

GT. BRIT. GENERAL DENTAL COUNCIL. Interim report of the experiment scheme for the training and employment of dental auxiliaries, 1963. 86 p.

GT. BRIT. MEDICAL RESEARCH COUNCIL. The sterilization, use and care of syringes; London, Her Majesty's Stationery Office, 1962. 26 p. illus.

JANN, G. R. and WHITMAN, D. F. Lisping and tongue thrusting; the evaluation and retraining of oralfacial muscle patterns. Penfield, N.Y., The Board of Cooperative Educational Services. Rev. ed. 1963. 30 p. $1.50

KEREBEL, B. Pathologie et prophylaxie des caries dentaires. Communication faite aux Premieres Journees Dentaires de Brest, le 19 mai 1963. 36 p. illus.

MICHIGAN UNIVERSITY. SCHOOL OF PUBLIC HEALTH. The administration of local dental programs. Ann Arbor, Michigan. Continued Education Series No. 96, 1963. 278 p. $3.00

MONHEIM, L. General anesthesia in dental practice. Ed. 2. St. Louis, Mosby, 1964. 467 p. illus. $11.35

NORDENRAM, A. Autotransplantation of teeth; a clinical and experimental investigation. (Acta Odontologica Scandinavica,

Vol. 21, Sup. 33.) Stockholm, 76 p. illus.

PERNKOPF, E. Atlas of topographical and applied human anatomy. Vol. I. Head and neck. Edited by Dr. Helmut Ferner. Translated from German by Dr. Harry Monsen. Philadelphia, Saunders, 1963. 356 p. illus. $35.10

SARNER, H. Dental malpractice and its avoidance. (Practical Dental Monographs, May 1964.) 32 p.

STAPLE, P. H. Advances in oral biology, Vol. I. New York, Academic Press, 353 p. illus. $15.50

THOMPSON, E. O. The "Euthenics Dentistry Concept." (Practical Dental Monographs, March 1964.) Chicago, Year Book Medical Pubs., Inc. 40 p. illus.

THOMPSON, W. P. Medical care; programs and issues. Toronto, Clarke, Irwin & Co. Ltd., 1964. 178 p. $4.00

WATKINS, M. H. and FORSTER, D. F. editors. Economics: Canada. Toronto, McGraw-Hill, 1963. 376 p. $5.75

in memoriam

JAMES GEORGE ANDREWS — Dr. J. G. Andrews of Toronto died on March 11, 1964. He was 49. Dr. Andrews was born in Toronto in 1914. Following graduation from the University of Toronto in 1941, he served with the Royal Canadian Dental Corps until 1963. He then returned to Toronto where he practised until the time of his death. Dr. Andrews is survived by his wife, Mary; two sons, Timothy and Stephen; two daughters, Deborah and Maryclare; a sister, Mrs. G. Monjuris; and a brother, Andrew.

WILLIAM ALLAN ARMSTRONG — Dr. W. A. Armstrong of Ottawa died on February 29, 1964. He was 76. Dr. Armstrong was born in Carleton County in 1887. He received his early education in Ottawa and graduated from the Royal College of Dental Surgeons of Ontario in 1909. Dr. Armstrong was a former president of both the Ottawa Dental Society and the Eastern Ontario Dental Association. In 1959 he was made a life member of the Royal College of Dental Surgeons of Ontario. Surviving Dr. Armstrong are his wife, sons, daughters and grandchildren.

CHARLES LAWSON BECK — Dr. C. L. Beck of Kitchener, Ontario, died on February 7, 1964. He graduated from the Royal College of Dental Surgeons of Ontario in 1923. Dr. Beck is survived by his wife, Helen.

EDMOND BRICAULT—Le Dr Edmond Bricault de Montréal est décédé le 23 avril, 1964, à l'âge de 65 ans. Il était né à Lefaivre, Ontario, en 1898 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1925. Durant les quarante dernières années il pratiqua dans la paroisse St-Enfant-Jésus du Mile-End. Lui survivent sa femme, Lorette; deux filles, Mme Jacques Dubois et Mlle Monique; son fils Gilles; et trois petits-enfants.

GEORGE ARNIM CALBECK — Dr. G. A. Calbeck of Dunnville, Ontario, died on May 8, 1964. He was 66. Dr. Calbeck was born in Brantford, Ontario, in 1897. Following graduation from the Royal College of Dental Surgeons of Ontario in 1921, he practised in Fonthill for a year. He then went to Dunnville where he remained until his death. During World War I Dr. Calbeck served overseas from 1916 until 1918. He is survived by his wife, Therese; one son, Rev. J. A. Calbeck of Winnipeg; and one daughter, Mrs. J. A. Baines of Wales.

STUART ERIC CAVERLY—Dr. S. E. Caverly of Elliott Lake, Ontario, died on April 13, 1964. He was 41. Dr. Caverly was born in Cache Bay, Ontario, in 1923. He graduated from the University of Toronto in 1950 and practised in Timmins and Elliott Lake. Dr. Caverly was a past president of the Northern Ontario Dental Association. Surviving him are his wife and three children.

SOLOMON DORAN—Dr. S. Doran of Brandon, Manitoba, died on March 4, 1964. He

was 83. Dr. Doran was born in Iroquois, Ontario, in 1881 and received his licence in dental surgery in 1910. He was a life member of the Manitoba Dental Association. Besides his wife, Dr. Doran is survived by one daughter, Mrs. D. F. Roberts of Sudbury, and three grandchildren.

EDWARD VLODIMER DUBISKEY—Dr. E. V. Dubiskey of Canora, Saskatchewan, died on March 28, 1964. He was 53. Dr. Dubiskey was born in the Ukraine in 1910. He graduated from Dalhousie University in 1939 and practised in Preeceville, Saskatchewan, before going to Canora. Dr. Dubiskey is survived by one daughter.

ALEXANDER STANLEY DUNN — Dr. A. S. Dunn of Orillia, Ontario, died on June 1, 1964. He was 68. Born in Campbellford, Ontario, in 1895, Dr. Dunn graduated from the University of Toronto in 1930. Following graduation he practised in Hearst, Ontario, until 1932 when he went to Kapuskasing. In 1940 he moved to Orillia. Dr. Dunn served in both World War I and World War II. Besides his wife, Doris, Dr. Dunn is survived by a daughter, Mrs. L. Doolittle of Woodstock and a sister, Mrs. G. Douglas of Toronto.

REGINALD CLAIR FIERHELLER — Dr. R. C. Fierheller of Vancouver died on March 5, 1964. He was 76. Dr. Fierheller was born in Toronto in 1887. He graduated from the North Pacific Dental College (University of Oregon) in 1929 and practised in Vancouver until 1958. During World War I he served overseas with the 68th Field Artillery. Dr. Fierheller is survived by his wife, Charlotte; two daughters, Mrs. J. R. MacLean of Vancouver and Mrs. J. T. Fowle of Nakusp, British Columbia; and seven grandchildren.

CAMPBELL ALLEN FINDLAY—Dr. C. A. Findlay of Ottawa died on April 2, 1964. He was 59. Dr. Findlay was born in Manotick, Ontario, in 1904. He received his early education at Kemptville, Ontario, and graduated from the Royal College of Dental Surgeons of Ontario in 1928. Dr. Findlay is survived by his wife.

WALTER SCOTT FLORA—Dr. W. S. Flora of Ottawa died on April 2, 1964. He was 63. Dr. Flora was born in Winchester, Ontario, in 1901. He graduated from the Royal College of Dental Surgeons of Ontario in 1923 and practised in Ottawa. He was connected with the dental clinic in the out patients department of the Ottawa Civic Hospital and served in 1955 on the Ottawa Board of Health. Dr. Flora is survived by his wife, Bessie Jean; two brothers, Dr. Fred A. of Toronto and Harry L. of Winchester; and one sister, Mrs. Fred C. Thompson of Ottawa.

ROY SHOEBOTTOM FREELE — Dr. R. S. Freele of Windsor, Ontario, died on April 27, 1964. He was 66. Dr. Freele was born in Thorndale, Ontario, in 1897. He received his early education in London and graduated from the Royal College of Dental Surgeons of Ontario in 1922. Dr. Freele then established a practice in Parkhill where he remained until 1940. During World War II he served overseas with the Canadian Army Dental Corps. Following his discharge in 1945, he went to Windsor where he practised until the time of his death. Dr. Freele is a past president of the Essex County Dental Association. Besides his wife, Edith, Dr. Freele is survived by a son, William; a brother, Harold; and four grandchildren.

NICOLAS N. GOUROFF—Dr. N. N. Gouroff of Val D'Or, P. Quebec, died on May 4, 1964. He was 68. Dr. Gouroff was born in Penza, Russia, in 1895 and graduated from the Université de Montréal in 1922.

MAURICE GRAVEL — Le Dr M. Gravel d'Alma, P. Québec, âgé de 58 ans, est décédé le 12 avril, 1964. Il était né à Ste-Anne de Chicoutimi en 1906 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1932.

LESLIE FRANKLIN HARE—Dr. L. F. Hare of Moose Jaw, Saskatchewan, died on March 26, 1964. He was 65. Dr. Hare was born in Windsor, Ontario, in 1898 and graduated from the Royal College of Dental Surgeons of Ontario in 1923. He had served on the Board of Governors of the Canadian Dental Association and on the Council of the College of Dental Surgeons of Saskatchewan. Dr. Hare is survived by his wife, Norma, one son and one daughter.

CHARLES LLOYD HUFFMAN—Dr. C. L. Huffman of Picton, Ontario, died on March 22, 1964. He was 85. Dr. Huffman was born in Elgin County, Ontario, in 1878. Following graduation from the Royal College of Dental Surgeons of Ontario in 1905, he practised for some time at Forest, Ontario, moving later to Picton. Dr. Huffman is survived by several cousins and nieces.

WILLIAM FERGUSON MacKENZIE — Dr. W. F. MacKenzie of Winnipeg died on

April 13, 1964. He was 65. Dr. MacKenzie was born in Winnipeg in 1898 and graduated from the Royal College of Dental Surgeons of Ontario in 1923. He was a past president of the Winnipeg Dental Society. During the First World War he served overseas with the 3rd Field Ambulance Corps and the Royal Flying Corps. Dr. MacKenzie is survived by his wife, Isabel, and three sons, Paul of Regina, William of Montreal, and Dudley of Winnipeg.

ALONZO WRIGHT McCLELLAND — Dr. A. W. McClelland of Montreal died on May 15, 1964. He was 76. Dr. McClelland was born in Cantley, P. Quebec, in 1887. Graduating from McGill University in 1914, he was appointed associate professor of orthodontics in 1922 and in 1924 became full professor. In 1948 he retired from McGill University, but continued in private practice. Dr. McClelland was the first dentist in the province of Quebec to limit his practice to orthodontics. He was a member of the American Association of Orthodontists, the Northeastern Society of Orthodontists, the International College of Dentistry, and an honorary member of the Quebec Association of Orthodontists. Dr. McClelland is survived by a son, A. K. of New York; a daughter, Mrs. W. D. Taylor; and three grandchildren.

JAMES ARNOLD MEEK—Dr. J. A. Meek of Welland, Ontario, died on April 5, 1964. He was 65. Dr. Meek was born in Alton, Ontario, in 1898. He graduated from the Royal College of Dental Surgeons of Ontario in 1925 and practised in Welland from then until the time of his death. Dr. Meek is survived by his wife, Gladys; two sons, Robert Allen of Niagara Falls and John Herbert of Montreal; and a sister, Mrs. Fred Hotrum of Toronto.

NORMAN JOHNSON MORSE — Dr. N. J. Morse of Ville St-Laurent, P. Quebec, died in March 1964. He was 42. Dr. Morse was born in Montreal in 1921. He graduated from McGill University in 1951.

CHARLES GORDON PEARSON—Dr. C. G. Pearson of Go Home Bay, Ontario, died on April 14, 1964. He was 56. Dr. Pearson was born in Toronto in 1907. He graduated from the Royal College of Dental Surgeons of Ontario in 1932 and practised in Toronto, retiring in 1963. Dr. Pearson is survived by his wife, Sally, and a son, Charles Crawford.

LEON JACQUES PERRON—Le Dr L. J. Perron de Verdun, P. Québec, âgé de 66 ans, est décédé le 19 mai 1964. Le Dr Perron était né à St-Joseph, Comté Beauce, en 1897, et il obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1921.

VICTOR JOSEPH PINARD—Dr. V. J. Pinard of Ottawa died on March 14, 1964. He was 73. Dr. Pinard was born in Ottawa in 1890. Following graduation from the Royal College of Dental Surgeons of Ontario in 1913, he practised in Ottawa until 1916. He then served overseas during World War I as a captain with the Canadian Army Dental Corps until 1919 when he went to Paris, France. Dr. Pinard practised in Paris until 1940 and then returned to Ottawa. He served as president of the American Dental Club of Paris in 1928 and 1930 and was a member of the American Dental Society of Europe. From 1929 until 1940 Dr. Pinard was on the staff of the American Hospital of Paris. In 1963 he was made a life member of the Royal College of Dental Surgeons of Ontario. Dr. Pinard is survived by his wife, Jacqueline, and one son.

FRANK E. SKINNER—Dr. F. E. Skinner of Saskatoon, Saskatchewan, died on March 16, 1964. He was born in Richmond, P. Quebec. Dr. Skinner received his early education at Bishop's College in Montreal and graduated from McGill University in 1902. He practised first in Richmond, and later in Saskatoon. He retired in 1956. Dr. Skinner is survived by his wife and two sons, Lloyd (D.D.S.) of Saskatoon and Leslie (M.D.) of Vancouver.

JACK L. WARRINER—Dr. J. L. Warriner of Winnipeg died on March 6, 1964. He was 54. Dr. Warriner was born in Bracebridge, Ontario, in 1909. He received his early education in Winnipeg and graduated from the University of Toronto in 1940. During World War II he served with the Canadian Army Dental Corps. Dr. Warriner is survived by his wife, Sheila; two daughters, Mary Emily and Peggy; and two sons, Jack and Robbie.

NILE HUGHES WINN—Dr. N. H. Winn of New Hamburg, Ontario, died on March 16, 1964. He was 71. Dr. Winn was born in New Hamburg in 1892. He graduated from the Royal College of Dental Surgeons of Ontario in 1913 and was made a life member of the college in 1963. During World War I he served overseas with the Canadian Army Dental Corps in the rank of captain. Dr. Winn is survived by his wife, Alice Bet; a daughter, Mrs. A. La Pierre; and a sister, Mrs. J. W. Aikenhead.

canadian dental association retirement savings plan

Quarterly report

May 31, 1964

	Amount invested	*Market value*	*Unit value*
Government Bond Fund	$ 388,173	$ 393,799	$12.856
Corporate Bond Fund	708,569	714,039	13.599
Common Stock Fund	1,810,097	2,162,492	18.138
	$2,906,839	$3,270,330	

- Average Individual Contribution in 1963: $1,324.
- Benefits of the plan: (1) Contributions are tax deductible; (2) Diversification through three funds; (3) Protects your retirement savings dollars against inflation.
- Investment Manager: The Royal Trust Company.
- For further information please complete and mail this coupon:

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PENSION AND INSURANCE PLANS
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- Sponsored by the Canadian Dental Association for its members.

plan d'épargne-retraite association dentaire canadienne

Rapport trimestriel

le 31 mai 1964

	Montant investi	*Valeur au marché*	*Valeur unitaire*
Fonds d'obligations gouvernementales	$ 388,173	$ 393,799	$12.856
Fonds d'obligations corporatives	708,569	714,039	13.599
Fonds d'actions ordinaires	1,810,097	2,162,492	18.138
	$2,906,839	$3,270,330	

- Cotisation individuelle en 1963: $1,324.
- Avantages du régime: (1) La déduction des cotisations de l'impôt; (2) La diversification qu'assurent les trois fonds; (3) La protection de vos épargnes contre l'inflation.
- Administrateur des placements: Trust royal.
- Pour tous renseignements, veuillez remplir et poster ce coupon.

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L'ASSOCIATION DENTAIRE CANADIENNE
2249 rue Yonge
Toronto 7, Ontario

Veuillez me faire parvenir des renseignements sur le régime d'épargne-retraite de l'Association dentaire canadienne.

Nom _____

Adresse _____

_____

- Commandité par l'Association dentaire canadienne à l'intention de ses membres.

announcements • avis

CANADIAN DENTAL ASSOCIATION

1964		
1965	Quebec City	May 30-June 2
1966	Halifax	June 12-15
1967	Toronto	May 14-17

FÉDÉRATION DENTAIRE INTERNATIONALE

San Francisco		November 7-14
Vienna		June 26-July 3
Israel		
Paris		

Aug. 2-8, 1964	1st International Dental Congress of Venezuela	Caracas, Venezuela	Dr. P. E. Henriquez	Apartado de Correos 1341, Caracas, Venezuela
Aug. 11-14, 1964	Israel Dental Association	Jerusalem and Tel-Aviv, Israel	Dr. I. Seifert	49 Bar Kochba Street, Tel-Aviv, Israel
Aug. 24-28, 1964	New Zealand Dental Association	University of Auckland, Auckland, N.Z.	Mr. D. I. Pert	12 Kitchener Street, Auckland C.1., N.Z.
Sept. 10-12, 1964	Newfoundland Dental Society	Corner Brook, Newfoundland	Dr. R. W. MacLeod	63 Broadway, Corner Brook, Nfld.
Sept. 11-13, 1964	Northern Ontario Dental Association	North Bay, Ontario	Dr. R. C. Weegar	539 Cassells Street, North Bay, Ont.
Sept. 27-29, 1964	Eastern Ontario Dental Association	Skyline Hotel, Brockville	Dr. K. L. Hargadon	298 Elgin Street, Ottawa 4, Ont.
4 oct., 1964	Académie canadienne des Sciences dentaires	Centre Social, Université de Montréal	Dr. A. J. Guay	132 rue Radisson, Trois-Rivières, P. Qué.
Oct. 24-25, 1964	Montreal Dental Club Pre-Clinic Seminar	Queen Elizabeth Hotel, Montreal	Dr. George Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Oct. 26-27, 1964	Montreal Dental Club Fall Clinic	Queen Elizabeth Hotel, Montreal	Dr. George Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Nov. 9-12, 1964	American Dental Association	San Francisco, California	Dr. H. Hillenbrand	222 East Superior Street, Chicago 11, Illinois, U. S. A.
23-29 nov., 1964	38es Journées dentaires internationales de Paris	Maison de la Chimie, Paris	M. Henri Sahel	75 rue Blanche, Paris-9e, France
Nov. 26, 1964	Annual Winter Clinic, Toronto Academy of Dentistry	Royal York Hotel, Toronto	Mrs. N. H. Montgomery	230 St. George Street, Toronto 5, Ontario.
Dec. 26-31, 1964	American Association for the Advancement of Science	Queen Elizabeth Hotel, Montreal	Mr. R. L. Taylor	1515 Massachusetts Avenue, N.W., Washington 5, D.C., U.S.A.

Note • Due to lack of space the Journal cannot accommodate all announcements of foreign dental meetings and postgraduate and refresher courses. Readers are invited to write to C.D.A. headquarters for information concerning unlisted meetings and courses. Further information concerning listed meetings and courses should be sought from the sponsoring institution.

L'Association Dentaire Canadienne

JOURNAL

Volume 30
Numéro 7
juillet 1964

The Canadian Dental Association

L'assurance-santé dentaire

par Paul Simard, D.D.S., D.H.D.P., Lévis, P.Qué.

L'assurance-santé est née d'un besoin fondamental chez l'homme, celui de la sécurité. Dans le but de répondre à cette aspiration toute naturelle, toute légitime, il a institué des sociétés d'entr'aide, des mutuelles.

Déjà à l'ère romaine prenait naissance ce que l'on croit être la première forme d'assurance sociale. Elle avait trait aux services funéraires. En effet, un acte datant de l'an 133 de l'ère chrétienne indique qu'il existait à Lanuvium, ville sise près de Rome, un groupement formé de gens dépourvus de fortune qui payaient une cotisation d'admission de 100 sesterces (environ $4) accompagnée d'un flacon de bon vin. La souscription mensuelle se montait à 5 as (environ 5 cents). "Au décès d'un membre dont les souscriptions n'étaient pas en retard, l'héritier touchait pour les frais funéraires une somme de 300 sesterces ($12) dont 50 ($2) devaient être distribués aux membres présents aux funérailles."[1]

Au Moyen-Age, l'Etat s'efforçait déjà de protéger l'individu contre les désastres. L'on voit par exemple que, du temps de Charlemagne (742-814), l'assistance aux indigents incombait à la paroisse. "Ce principe d'ailleurs est demeuré jusqu'à

Conférence prononcée devant la Société Dentaire de Montréal, le 24 mars 1964.

notre époque la base des régimes statutaires ou coutumiers d'assistance aux indigents dans l'ouest de l'Europe et l'Amérique du nord."[1]

L'histoire nous révèle aussi que l'Etat remplaçait l'Eglise à mesure qu'elle se retirait du domaine de l'assistance aux indigents ou aux malades. C'est ce que nous vivons présentement dans le domaine de l'hospitalisation.

Les corporations sociales du Moyen-Age, corporations de métiers, corporations religieuses, avaient été créées pour différents motifs, mais principalement en vue de l'assistance mutuelle des membres dans les moments de détresse et surtout en cas de maladie ou d'infirmité. C'est de l'assurance-santé facultative à l'état embryonnaire.

L'assurance-santé obligatoire ne date pas non plus d'hier. Déjà Daniel Defoe, l'auteur de *Robinson Crusoe,* qui a vécu de 1661 à 1731, préconisait l'assurance-santé obligatoire. "Certains hommes sont moins prévoyants que des bêtes, disait-il, et c'est pour cela que la participation devrait être obligatoire."

L'idée de l'assurance-santé obligatoire faisait son chemin en Europe. Et finalement arriva ce qui devait arriver: un pays adopta une telle législation. En effet, en 1883, Bismarck présentait son projet de loi d'assurance-maladie, que le Reichstag adopta et qui entra en vigueur le 1er décembre 1884.

L'exemple de l'Allemagne fut suivie par l'Autriche en 1888, par la Hongrie en 1891 et, plus tard, par plusieurs autres pays un peu partout dans le monde. Aussi aujourd'hui, la plupart des pays ont-ils des systèmes d'assurance-santé et, dans plus de 50 pays, ces plans d'assurance-santé englobent les soins dentaires.[2]

La question de l'assurance-santé n'est pas nouvelle au Canada, car, depuis plus de 40 ans, elle a été l'objet de beaucoup de discussions de la part de divers organismes au pays.

D'après les dispositions de l'Acte de l'Amérique du Nord britannique, l'assurance-santé est essentiellement du ressort des provinces. Aussi n'y a-t-il pas de plan conjoint fédéral-provincial pour les soins médicaux (exception faite pour l'assurance-hospitalisation).

Deux provinces canadiennes ont des plans d'assurance couvrant les soins médicaux, l'Alberta et la Saskatchewan (où l'assurance est obligatoire).[3] Les traitements dentaires n'y sont pas inclus.

La question de l'assurance-santé est à l'étude dans la plupart des autres provinces.

Il ne saurait être question dans ces considérations d'étatisation de la profession, c'est-à-dire d'une forme de dentisterie où les praticiens sont les employés de l'Etat, comme en Russie par exemple, car le problème ne se pose pas.

De même le domaine de l'assurance-santé dentaire obligatoire, c'est-à-dire d'une assurance patronnée par l'Etat et qui couvre toute la population, sera à peine effleuré. C'est que, contrairement à l'opinion largement répandue dans la profession, l'assurance-santé dentaire obligatoire n'est pas en passe de devenir une réalité.

L'assurance-santé dentaire obligatoire n'est pas près d'être instaurée au Québec pour les raisons suivantes:

Première raison: l'assurance-santé a été abandonnée à la fin de la guerre. — Le 5 février 1942, le gouvernement fédéral instituait un Comité consultatif de l'assurance-santé. Le 1er mars 1943, ce comité soumettait un rapport à l'honorable Ian A. Mackenzie, Ministre des Pensions et de la Santé nationale, rapport qui était un avant-projet de loi de quelque 594 pages.

On dit même que le projet de loi instituant l'assurance-santé était imprimé et qu'il fut retiré à la dernière minute pour être remplacé en 1945 par celui des allocations familiales.

Il faut se rappeler que, durant la guerre, le gouvernement fédéral avait largement envahi le champ de taxation et, qu'à la fin de la guerre, les coffres étant bien garnis, l'on pouvait se payer le luxe de lois sociales.

Pourquoi a-t-on donné préséance aux allocations familiales sur l'assurance-

TABLEAU 1 Assurance-hospitalisation, années financières, 1958-59, 1959-60, 1960-61, 1961-62, 1962-63: paiements fédéraux.

Province	1958-59 $	1959-60 $	1960-61 $	1961-62 $	1962-63 $	Total des paiements $
Terre-Neuve	2,857,886					26,391,264.53
Ile-du-Prince-Edouard	—	447,338				4,513,720.31
Nouvelle-Ecosse	1,572,782.64					44,723,617.65
Nouveau-Brunswick	—	4,575,374				32,931,273.74
Québec	—	—	13,936,740	73,022,517	88,713,635	175,672,893.91
Ontario	13,140,213	71,892,833	84,484,271	104,498,880	122,103,382	396,119,581.80
Manitoba	7,148,534					64,116,775.82
Saskatchewan	8,430,441					70,494,554.04
Alberta	8,774,575					86,894,421.48
Colombie britannique	12,784,038					111,430,267.33
Yukon	—	—	168,683			774,987.46
Territoires du nord-ouest	—	—	261,849			1,162,939.43
Total					336,672,777	1,015,226,297.50

D'après le rapport annuel du Ministère de la santé nationale et du bien-être social, 1963.

santé? Probablement parce que cette mesure était plus rentable politiquement dans la province de Québec, car le gouvernement d'alors comptait sur le Québec pour sa réélection.

Quoi qu'il en soit, le projet a avorté et le Fédéral n'a plus tenté de proposer l'assurance-santé en bloc, mais plutôt par section. C'est le cas de la loi de l'Assurance-hospitalisation et des services diagnostiques mise en application à compter du 1er juillet 1958. Il s'agit ici d'un plan conjoint (Tableau 1).

Le fédéral fournit donc des sommes considérables pour l'assurance-santé, plus de $336 millions pour l'exercice financier 1962-63; l'estimé est de $390 millions pour l'année 1963-64. Il pourrait difficilement y consacrer plus de fonds.

Deuxième raison: le fédéral ne peut envahir le champ des soins médicaux.— (a) parce que déjà il y a des occupants. La Saskatchewan et l'Alberta ont des plans d'assurance couvrant les soins médicaux et les gouvernements de ces provinces financent eux-mêmes à 100 pour cent des programmes, sans participation du fédéral; (b) aussi parce que les provinces se raidissent de plus en plus devant des plans conjoints. Le dernier exemple en date à l'appui de cette affirmation est celui des Caisses de retraite. L'on sait jusqu'à quel point le fédéral a dû modifier ses propositions à cause du Québec.

Troisième raison: Le Québec n'a pas présentement, et apparemment pour quelques années à venir, les fonds nécessaires pour mettre sur pied un plan d'assurance-santé. — Sans vouloir porter un jugement favorable ou défavorable sur la politique du gouvernement, le Québec est engagé dans des réalisations qui accaparent toutes ses ressources et même davantage. Nationalisation de l'électricité, gratuité scolaire, assurance-hospitalisation, complexe sidérurgique, etc., sans compter l'investissement de capitaux qu'il faudra faire pour les travaux publics et la voirie à l'occasion de l'exposition universelle.

De plus, l'on sait que le budget provincial pour l'exercice 1964-65 est de $1,229,-378,600 (versements fédéraux exclus). Or la part du Ministère de la santé est de $203,003,000, soit 16.5 pour cent du budget total. Cette proportion ne saurait guère être augmentée pour le moment.

Quatrième raison. — L'assurance-santé est ordinairement instaurée par des partis socialistes sous la pression de mouvements ouvriers. Or il n'existe pas de parti de gauche qui soit puissant au Québec et les syndicats ne se sont pas encore intéressés à la question dentaire.

Cinquième raison: L'assurance - santé n'existe pas pour les soins médicaux et l'on sait qu'ordinairement les soins dentaires ne sont inclus que beaucoup plus tard. — C'est le cas de la Saskatchewan et de l'Alberta dont les programmes d'assurance-santé ne comprennent pas les traitements dentaires.

Quand instituera-t-on l'assurance-santé pour les soins médicaux au Québec? Le gouvernement ne s'est pas prononcé clairement sur cette question. Dans un article paru dans *l'Action* du 3 décembre 1963 (et signé R.B.) le journaliste écrit à la suite d'une entrevue avec le Dr Gélinas, sous-ministre de la santé: "Les recherches (sur l'assurance-santé) sont poursuivies en collaboration avec le Collège des médecins, mais il n'y a rien de définitif encore quant aux conclusions qu'on peut en tirer. De là il est possible de conclure que le projet ne verra pas le jour à la prochaine session provinciale et qu'il faudra attendre deux, peut-être trois ans, avant de la voir naître."

Lorsque l'assurance-santé sera instaurée, elle n'englobera probablement pas les soins dentaires, comme c'est le cas dans les autres provinces.

De plus, comme la population du Québec attache peu d'importance aux soins dentaires, moins que dans les autres provinces situées plus à l'ouest, les gouvernants, peu importe leur parti politique, seront peu enclins à instituer un programme d'assurance-santé dentaire.

Sixième raison: le manque d'effectifs de la profession.—Cette question ne sera pas touchée, car il paraît plus pratique de traiter d'assurance-santé dentaire facultative. Là nous assistons à un tournant de l'histoire de la dentisterie puisque cette forme d'assurance se concrétise sur le continent nord-américain.

L'assurance-santé dentaire facultative est présentement offerte au public par des compagnies commerciales et elle pourrait l'être éventuellement par des corporations dentaires organisées par la profession.

Corporations de services dentaires

Les corporations de services dentaires sont nées aux Etats-Unis dans le but de contrecarrer l'intrusion de divers organismes dans le domaine de la dentisterie. En effet de plus en plus d'industries, d'unions ouvrières, de coopératives de consommateurs, etc., s'assuraient les services de dentistes salariés ou encore passaient des contrats avec un nombre restreint de dentistes (ce que l'on appelle les 'group clinics') basé sur des honoraires fixes.

A cet effet, le Conseil de santé dentaire de l'Association dentaire américaine (Council on Dental Health) exprimait, en 1959, l'avis que cette orientation nouvelle était de nature à abaisser le standard de la dentisterie. Même s'il est impossible d'éliminer complètement cette situation, spécifiait-il, il faut entraver ce mouvement grâce à des plans de plus en plus alléchants offerts par les corporations de services dentaires ou par les compagnies d'assurance. En fait, cette nouvelle ligne de conduite semble porter fruit puisque, l'année dernière, il n'y a pas eu augmentation du nombre d'assurés en vertu du genre d'ententes plus haut citées.

En 1960, le Conseil de santé dentaire recommandait la création d'un organisme national qui servirait de lien entre les différentes corporations qui se fondaient dans divers Etats.

En 1963, lors du congrès national, la Chambre des délégués (House of Delegates) de l'A.D.A. a décidé que le Conseil de santé dentaire deviendrait cet organisme national. L'on a, à la même occasion, déterminé ses attributions. Il doit être: (a) un organisme d'information pour les différentes corporations et les sociétés d'état désireuses de fonder une corporation; (b) un organisme de coordination entre les diverses corporations; (c) un organisme de recherches; il doit colliger, classifier, etc., les statistiques et tous les renseignements inhérents à ces corporations.

La Chambre des délégués a aussi passé une résolution "réaffirmant que la responsabilité de pourvoir aux soins dentaires doit demeurer celle de la profession dentaire et que l'affiliation à d'autres organismes doit être limitée aux procédures administratives."

Développement. — Les corporations de services dentaires se fondent avec rapidité. De huit en 1959, elles ont passé à 21 en avril 1963 (il y avait donc alors 21 Etats qui comptaient des corporations). Le nombre d'assurés était à ce moment de 1 million et demi.

Fonctionnement. — Les corporations sont fondées par l'Association de l'Etat. L'on a donc des corporations d'Etat. Elles sont indépendantes des associations qui les ont fondées.

Le financement de ces corporations est le point crucial, surtout au début. Les fonds sont ordinairement fournis par les dentistes sous forme de prêts. Car il faut des fonds, d'abord pour se conformer à la loi et aussi pour rémunérer le salaire d'un directeur-exécutif, d'au moins un commis à demi-temps, en plus d'un local. D'autant plus que, d'après Kenneth Ryan, qui est membre du Conseil de santé dentaire, les corporations doivent s'attendre à des déficits au cours des 3 ou 5 premières années.

Le directeur-exécutif est ordinairement un avocat, parfois un dentiste, s'il a des qualités d'administrateur.

La formation du bureau de direction varie suivant la loi des Etats. Dans les corporations existantes, un directeur sur trois en moyenne n'est pas dentiste. Et Ryan a sans doute raison d'affirmer qu'il est toujours préférable de compter des directeurs qui ne sont pas des dentistes.

California Dental Association Service (CDAS). — La corporation la plus forte est celle de la Californie. En effet, en août 1963, elle avait passé des contrats avec 30 groupements qui représentaient au-delà de 500,000 membres.[4]

Les polices ou les plans sont très élastiques; la corporation californienne offre un choix multiple.[5] Il comporte des:

(a) Options quant aux traitements. — Les traitements sont divisés en 3 catégories: (1) traitements de base: soins nécessaires à l'élimination des caries, les extractions, la préparation des dents en vue de prothèse partielle, etc.; (2) traitements de prothèse: couronnes, ponts, prothèse partielle et complète, périodontie; (3) traitements d'esthétique: résection de la mandibule, orthodontie (cosmetic dentistry).

A date, les polices émises englobent les 2 premières catégories. Aucun groupe n'a accepté la troisième.

(b) Options quant aux bénéficiaires.— Ils peuvent être: (1) les employés seulement au début — plus tard leurs dépendants; (2) les enfants au début — par la suite les autres membres de la famille.

(c) Options quant à la déduction. — (1) Un montant déductible peut être imposé; dans certains cas, il est de $35; (2) la contribution de l'assuré peut être de 20 à 30 pour cent (paiement conjoint).

L'avantage de ces restrictions, soit l'une seulement ou les deux combinées, permet de baisser le montant de la prime et d'offrir un plus large éventail de traitements.

(d) Options quant aux responsabilités financières.—(1) La corporation peut se rendre responsable des déficits éventuels. S'il y a déficit au terme du contrat, la CDAS le paie et, s'il y a renouvellement de contrat, elle apporte une majoration du taux des primes; (2) le groupe se rend

responsable des déficits.

Il va de soi que la prime est plus élevée dans le premier cas.

D'autres corporations offriront une option quant à la limite des prestations.

(e) Option quant à la limite des prestations.—L'on peut prévoir aussi un plafond pour les dédommagements. Il se situera entre $200 et $500. Ceci tient pour l'ensemble des corporations des divers Etats.

Modes de rémunération. — Les corporations peuvent payer le dentiste de 3 façons: (1) d'après une liste d'honoraires, avec maximum: avant de fixer ces honoraires, l'on mène une enquête dans la région concernée et l'on fait ensuite la moyenne; (2) d'après les honoraires réguliers ou courants de chaque dentiste (tant qu'il n'y a pas d'abus); (3) d'après une liste d'honoraires qui est de 20 à 30 pour cent au-dessous des honoraires médians.

La Corporation dentaire de la Californie recourt aux deux premières méthodes.

Le coût des primes. — Le coût varie suivant la police choisie. L'on estime qu'il en coûterait $340 par famille moyenne si 100 pour cent des bénéficiaires s'en prévalaient. Comme ce n'est pas le cas, le coût moyen de ces primes serait, d'après R. A. Simpson, de $30 à 50 par année pour un célibataire et de $120 à 150 pour une famille.[6]

Réaction des compagnies d'assurance. — Les compagnies d'assurance ont constaté qu'un champ d'action leur échappait et elles essaient de reprendre le temps perdu. Aussi maintenant 18 grandes compagnies offrent des polices d'assurances couvrant les soins dentaires. Telles sont la Continental Casualty Company, l'Equitable Life Insurance Society, l'Aetna Life Insurance Co., la Mutual of Omaha Insurance Co. et la Metropolitan Life Insurance Co.

Au Canada, l'inverse se passe. Les compagnies d'assurance sont les premiers occupants.

Plusieurs compagnies offrent des polices d'assurance pour soins dentaires; il y en a au moins sept, puisque le Comité des services dentaires de l'Association dentaire canadienne s'est réuni, les 9 et 10 décembre, afin d'étudier les plans de sept compagnies d'assurance.

Corporations dentaires au Canada

Politique de l'Association dentaire canadienne sur la question. — Le Conseil Exécutif de l'A.D.C. a approuvé les recommandations du comité des services dentaires. Ce comité recommandait que l'A.D.C.:[7]

(a) organise une centrale pour la diffusion de renseignements au sujet de plans dentaires pré-payés au Canada et dans d'autres pays.

(b) publie un bulletin contenant des nouvelles sur les plans dentaires prépayés et sur des questions connexes;

Ces deux recommandations ont donné naissance au *Bulletin d'économie dentaire (Dental Economics News Letter)*, dirigée par Mme I. Brown, directrice du Bureau des recherches économiques.

(c) favorise et encourage des réunions de représentants du comité des services dentaires, des comités provinciaux de services dentaires, de corporations existantes de services dentaires et des Services canadiens de plans dentaires incorporés (SCPDI). L'A.D.C. défraierait les dépenses occasionnées par ces réunions dans une proportion de 50-50.

(d) mette des fonds disponibles pour la création de plans de services dentaires; ces fonds serviraient à donner dans ce but des octrois aux provinces à certaines conditions. Les voici: une province, pour être éligible à une subvention de ce fonds, devrait déjà avoir créé une corporation de services dentaires. Le comité des services dentaires devrait au préalable sanctionner le projet à être financé et le personnel spécialisé qui serait embauché pour créer le projet. L'A.D.C., quand ces conditions seraient remplies, verserait un montant égal à celui versé par les organismes den-

taires provinciaux et par les corporations des services dentaires jusqu'à un maximum fixé pour chaque province. Tout surplus de la subvention de l'A.D.C. non utilisé après la réalisation du projet serait remis à l'A.D.C.

L'A.D.C., dans ce but, ne versera pas de montant égal à celui provenant de sources autres que les organismes dentaires provinciaux et les corporations des services dentaires eux-mêmes. Toute demande doit être sanctionnée par les membres corporatifs et soumise par eux.

Quelles sont, dans ce domaine, les réalisations pratiques? — Il n'existe pas au Canada de corporations dentaires en opération dans le domaine de l'assurance. Les deux seuls groupes d'assurés dans des plans patronnés par la profession sont celui de l'A.D.C. et celui du Collège de l'Ontario (Royal College of Dental Surgeons of Ontario); 26 dans le premier, 14 dans le deuxième (40:19,102,000). En fait personne.

L'on compte des corporations dentaires en Colombie britannique, Alberta, Nouvelle-Écosse et au Québec. Plusieurs de ces corporations ont déjà le droit de passer des contrats d'assurance.

Une corporation prévue en Ontario a l'intention de mettre sur pied un plan expérimental. Cette corporation à été retardée dans l'exécution du projet; en effet, avant d'obtenir ses lettres patentes, elle devra fournir au Surintendant des assurances de l'Ontario réponse aux questions suivantes: (1) Quel sera le montant des primes? (2) La nature des traitements —ceux qui seront exclus? (3) Quels seront les directeurs de la corporation? (4) Par qui et jusqu'à quel point les déficits possibles seraient-ils comblés au cours des premières années d'opération? (5) Quel sera le montant investi dans la corporation? (6) Comment sera opéré le financement de ses activités?

Les Services dentaires du Québec Inc. auraient, il va de soi, à répondre à des questions similaires au cas où cette corporation désirerait entrer dans le champ de l'assurance.

Somme toute, au Canada, dans le domaine des corporations dentaires, les cadres se forment; il reste à y insérer le principal, soit le tableau.

Compagnies d'assurance au Canada

Comme nous l'avons noté précédemment, de plus en plus de compagnies d'assurance à but lucratif offrent maintenant au Canada des polices d'assurance-santé dentaire. Il y en avait au moins sept en décembre 1963, soit l'Aetna, la British Pacific, la Continental, la Crown Life, la London Life, la Société des artisans, la Zurich.

De l'analyse de ces polices commerciales se dégagent, les considérations suivantes:

—la plupart s'adressent à des groupes; l'Aetna, par exemple, requiert une participation d'au-moins 200 membres;

—plusieurs compagnies exigent que la police couvrant les soins dentaires soit greffée à une autre assurance;

—dans presque tous les cas l'on fixe un plafond aux prestations, un montant de déduction et la participation de l'assuré;

—le montant des prestations varie beaucoup d'une police à l'autre: ce peut être 100 pour cent des honoraires chargés par les dentistes; l'on peut adopter une liste d'honoraires; dans d'autres polices, on paye 75 et même 50 pour cent des tarifs établis par le Collège de la province dans laquelle réside le groupe;

—enfin des polices stipulent que le patron doit payer 50 et même 100 pour cent de la prime.

Principaux avantages inhérents à toute assurance dentaire quelle qu'elle soit

—Une meilleure connaissance de l'importance des soins dentaires, puisque l'attention est centrée sur cette question;

—le recours aux soins de la part d'un plus grand secteur de la population. En Californie, l'utilisation du plan de la part des assurés a été de 72 pour cent pour

les enfants de moins de 15 ans, de 55 pour cent pour les personnes de plus de 15 ans; alors qu'en 1958, le tiers seulement de la population canadienne avait consulté le dentiste, d'après une enquête faite par l'A.D.C.[8]

—une meilleure santé dentaire;

—revenu du praticien plus stable, moins sujet aux fluctuations économiques. Ceci est surtout vrai dans les petites localités où il se trouve peu d'industries. Le ralentissement des affaires dans un domaine particulier est ressenti vivement par le praticien. La Corporation californienne verse mensuellement des montants de l'ordre de $800 par dentiste membre (soit les trois-quarts des 9,000 dentistes de cet Etat).

—une meilleure répartition des praticiens dans la province. Si l'assurance-santé devenait populaire, il y aurait moins d'écart entre le revenu du dentiste d'une petite localité et celui d'un grand centre.

—diminution de la pratique illégale; partant une utilisation plus progressive de la contribution des dentistes;

—baisse des comptes en souffrance.

Désavantages des plans d'assurance quels qu'ils soient

Ils sont accessibles à ceux qui sont le plus en mesure de défrayer les soins du dentiste. Sauf dans les cas où le patron paie en grande partie les primes, les indigents et les indigents médicaux ne peuvent se prévaloir de ces assurances.

Avantages des corporations dentaires en rapport avec les compagnies privées

Les corporations dentaires comportent l'insigne mérite de garder à la profession le contrôle de ces assurances. — C'est un facteur à ne pas minimiser:

(a) En effet, les conflits qui peuvent survenir au sujet des honoraires peuvent se régler entre les membres de la profession. Prenons le cas d'une corporation qui n'a pas de tarif maximum. Un dentiste peut à l'occasion 'peser un peu fort sur le crayon.' Son attention pourra être attirée par un confrère au nom de la corporation. Les discussions se font en famille.

(b) Mais là où la corporation est le plus utile aux dentistes c'est lorsqu'elle établit elle-même les taux de dédommagement. Elle respecte alors les honoraires en vigueur dans tel et tel milieu. De plus, la corporation indique le genre de traitements à inclure dans le plan. Dans le but

TABLEAU 2 Police offerte par la Cie d'assurance British Pacific aux familles et aux individus (0 - 80 ans), renouvelable jusqu'à 80 ans.

Traitements	Maximum payé par dent $
Obturation	3.00
Aurification	7.50
Incrustation	12.50
Couronne en or	12.50
Couronne en porcelaine, plastique	25.00
Pont fixe	25.00
Prothèse partielle	15.00
chaque crochet	15.00
Extraction	
dent temporaire	3.00
dent permanente	5.00
3ième molaire incluse	
dans les tissus	10.00
dans l'os	20.00

Un maximum de $3 est payé pour chaque traitement dentaire non indiqué plus haut (limite, un par jour). Le maximum pour ces traitements additionnels est de $150 par personne, par année.

L'on paie $1 par radiographie ou un maximum de $10, si plusieurs radiographies sont prises au cours d'une série de traitements.

Exclusion: prothèse complète, orthodontie, examen périodique.

Primes:
Application $6. Il n'est pas nécessaire que toute la famille participe au plan. S'il n'y a que les enfants d'une même famille qui s'inscrivent, le taux chargé pour le premier enfant sera celui d'un adulte.

Age du bénéficiaire	Primes mensuelles	
	Hommes $	Femmes $
0 - 17	2.15	2.15
18 - 45	3.25	3.50
46 - 65	3.70	3.95
66 - 80	5.45	5.45

TABLEAU 3 Polices offertes par la Cie d'assurance Zurich.

PLAN A

1. Traitements de base: Remboursement à 100 pour cent, suivant les honoraires établis par le Collège de chaque province, sans aucune déduction pour

extractions (incluant anesthésie)	— pas de maximum
obturations (amalgame, silicate, acrylique)	— pas de maximum
examen, radiographies, curettage, nettoyage	— $15 : maximum
anesthésie générale	— $10 : maximum par anesthésie

2. Traitements majeurs: Remboursement à 75 pour cent, suivant le barème établi par le Collège de chaque province pour

pièces de prothèse, réparation, couronnes, pont, travaux en or; jusqu'à concurrence de $500 par personne
les dentiers nécessaires pour la première fois ne sont payés que lorsque l'assurance est en vigueur depuis 12 mois
les dentiers de remplacement ne sont payés que lorsque l'assurance est en vigueur depuis 24 mois
orthodontie limitée aux enfants de moins de huit ans — jusqu'à concurrence de $150 par enfant pendant la période que dure l'assurance
traitements de périodontie, d'endodontie et de chirurgie limités à $100 par personne assurée durant 12 mois consécutifs

PLAN B

1. Traitements de base: idem qu'en A, sauf que le remboursement n'est que de 75 pour cent
2. Traitements majeurs: idem qu'en A, sauf que le remboursement n'est que de 50 pour cent

PRIMES

Dépendent du groupe
Variante: $1.65 - 2.50 : individu
$5.25 - 8.00 : famille

de rendre la prime abordable, les compagnies commerciales sont portées à réduire le montant des honoraires et l'éventail des traitements. La British Pacific Life Insurance Company nous en fournit un exemple (Tableau 2).[9]

Les inconvénients d'une telle police sont manifestes. D'abord tous les traitements ne sont pas inclus et surtout les prestations ne sont pas assez élevées. Même si dans cette police, on note: "La rémunération spécifiée n'indique pas nécessairement le taux maximum des honoraires du dentiste," l'assuré pourrait être mal disposé à payer le surplus que le dentiste chargera. Les patients qui se croient pleinement assurés réagissent mal quand ils reçoivent un compte et ont souvent l'impression que le dentiste surcharge.

Il faut ajouter cependant pour plus d'objectivité que certaines polices d'assurance semblent plus avantageuses. C'est le cas de celle de la Zurich Insurance Company (Tableau 3).[4]

La plus grande qualité des corporations dentaires c'est qu'elles opérent sans but lucratif. — Elles n'ont pas (a) à payer autant de frais d'administration, (b) à payer d'impôt, (c) à payer des profits.

La corporation de la Californie remet plus de 91 pour cent des primes perçues en prestations. Les dépenses d'administration s'élèvent à 8 pour cent seulement de l'argent perçu.

Suivant la même corporation, les plus importantes compagnies d'assurance compétitives ont accordé 65 pour cent des primes en prestations (la différence est à noter 91 et 65 pour cent — écart de 26 pour cent). L'administration a englobé 28 pour cent des primes et le reste constitue le profit.

Désavantages des corporations dentaires

Les dentistes s'immiscent dans le domaine de l'assurance, un domaine qui n'est pas

le leur. — La corporation doit s'attendre à un certain déficit au début; par conséquent, si elle est mal administrée, la faillite la guette. On se rappellera l'exemple de la Médicale. Fondée par des médecins, elle comportait une section d'assurance-vie et une autre d'assurance générale. Le Bureau de direction était exclusivement formé de médecins. On s'est vite rendu compte que ça ne tournait pas rond. L'on s'est engagé un administrateur et, au bout d'un certain temps, l'on s'est vu acculé à la faillite. $60,000 de réclamations dues alors que la caisse était vide.

La section assurance générale a été absorbée par une autre compagnie. Quant à la section assurance-vie, elle existe encore et elle accusait un surplus d'opération pour la première fois le 30 septembre 1963. Il faut dire que l'Exécutif, qui est composé de cinq membres, ne compte plus qu'un médecin.

Le cas de la Médicale est sans doute un cas extrême. De toute façon, le surintendant des assurances n'accepterait certainement pas la création d'un semblable organisme. Pour réussir, la corporation devrait s'inspirer de la politique de la corporation de la Californie, c'est-à-dire, choisir des membres du Bureau de direction en dehors de la profession. De même, il serait préférable que l'administrateur ne soit pas dentiste. Ce serait probablement d'ailleurs une exigence du surintendant des assurances. Si le choix était bien fait, la corporation pourrait connaître du succès.

Le public serait peut-être porté à voir dans cette nouvelle orientation de la profession une action mercantile, un geste de commerçant. — Il est vrai que cette impression serait atténuée par le fait que les contrats seraient négociés par une personne qui n'est pas de la profession, même si elle la représente.

Il existe une vague possibilité de conflit d'intérêt. — Cette éventualité pourrait théoriquement se présenter au début de la corporation, si les opérations étaient déficitaires. Imaginons, par exemple, que la corporation assure un groupe nombreux ici à Montréal. La durée du contrat est d'un an et commence le 1er janvier. Supposons maintenant qu'au début de novembre la caisse est presqu'à sec. Il y aurait alors tentation de réduire les traitements le plus possible afin d'éviter le déficit. Dans l'affirmative, ce ne serait pas nécessairement à l'avantage des assurés.

Toutefois, si les fonds souscrits pour former la corporation étaient suffisants, ce qu'exigerait sans doute le surintendant des assurances, la possibilité d'un conflit d'intérêt serait réduite au minimum.

Avantages des compagnies commerciales sur les corporations

Il n'y en a pas tellement.

1. Alors que les corporations dentaires transigent surtout avec des groupes, les compagnies commerciales peuvent passer des contrats avec des individus, ce qui étend le nombre des assurés.

2. Les compagnies évoluent dans leur propre sphère d'activités. Ils disposent de personnel compétent, actuaires, statisticiens, du matériel nécessaire. Comme la plupart sont de puissantes organisations, il n'y a pas de crainte quant aux faillites, par exemple.

3. Il semble bien que les compagnies peuvent atteindre un plus grand secteur de la population; elles sont en mesure d'assurer plus de monde. Leurs cadres sont établis; elles disposent de grands moyens de publicité et elles ont des agents en grand nombre.

L'attitude que devrait adopter la profession

Il va de soi que les opinions qui vont être émises sont personnelles et que ce n'est pas mon intention de les imposer à qui que ce soit.

Notre attitude en ce qui a trait à l'assurance-santé facultative. — L'assurance-santé facultative peut intéresser une

tranche appréciable de la population qui est en mesure de payer les frais dentaires, mais qui préfère quand même prévoir ces dépenses par une assurance afin de mieux balancer son budget.

L'assurance-santé facultative peut être utile aussi à ceux qui croient ne pas être en mesure de défrayer les comptes du dentiste (mais qui en fait le sont) tout simplement parce que leurs dépenses sont mal réparties, mal budgétées. A la suite d'un travail d'éducation, cette portion de la population peut recourir davantage à l'assurance.

Il y a certainement des grandes possibilités dans ce domaine. Les dernières statistiques nous apprennent que 47 pour cent de la population avait une assurance pour soins médicaux au Canada.[10] Il n'y a donc pas de raison pour que l'assurance-santé dentaire facultative n'ait pas sa part de popularité.

Or l'on sait que l'assurance-santé facultative peut se réaliser de deux façons: par les compagnies commerciales et par les corporations dentaires.

Les compagnies commerciales. — La profession peut surveiller la ligne de conduite de ces maisons, suggérer des listes de traitements les plus complètes possible, recommander un barème d'honoraires. Même si la décision finale reste forcément aux compagnies, il est bon d'avoir avec elles des dialogues. En général, elles sont prêtes à collaborer, car elles savent bien que si les dentistes déconseillent une police donnée, la clientèle sera moins nombreuse.

Les corporations dentaires. — La profession devrait, à mon sens, considérer d'une façon très sérieuse et immédiate la possibilité de mettre sur pied une telle corporation. Un expert pourrait être engagé qui ferait des sondages afin de s'enquérir de la possibilité d'intéresser des groupes à une telle assurance. Une tentative pourrait être faite par exemple du côté du personnel de l'Université de Montréal. Comme ce groupe est déjà nanti d'une assurance pour soins médicaux, comme il est composé de gens qui normalement comprennent mieux l'importance des soins dentaires que la masse, la démarche serait peut-être fructueuse.

Du côté financier, il ne semble pas y avoir de difficultés insurmontables.

L'ADC se dit prête à contribuer d'un certain montant (il s'agirait d'avoir des éclaircissements à ce sujet). Le Collège dispose, à ce qu'on affirme, de quelques gros sous; nul doute qu'il ferait sa part. Et enfin le praticien pourrait compléter, sous forme de prêt, le montant de base exigé par le surintendant des assurances, si la contribution des deux premiers organismes était insuffisante.

L'assurance-santé facultative intéresse ceux qui ont les moyens de payer les primes de même que ceux dont les patrons défraient en partie ou en totalité la contribution. Il reste les indigents et les indigents médicaux.

Notre attitude à l'égard des indigents. — Il faudrait recommander le plus tôt possible au gouvernement d'instaurer un plan de bien-être pour tous les indigents. Le Collège, dans son mémoire présenté le 13 avril 1962 à la Commission royale d'enquête sur les services de santé, suggérait une telle mesure.[11] Cependant les bénéfices étaient limités aux enfants au-dessous de 16 ans. Et là je me permets de ne pas être d'accord, car il est tout simplement humain que tous les indigents, vieux comme jeunes, soient secourus par l'Etat; c'est son rôle supplétif.

Notre attitude à l'endroit des indigents médicaux. — Par 'indigents médicaux,' l'on entend la classe qui n'entre pas dans la catégorie que l'on est convenu d'appeler 'indigents,' mais qui est tout de même dans l'impossibilité de défrayer en totalité le coût des soins nécessaires.

Le Dr Clarence Bouillon se servait d'un indice d'indigence médicale. D'après cet indice, les trois enfants d'une famille, dont le chef gagnerait $5,000 et paierait $100 de loyer, seraient éligibles (quoiqu'à la limite) aux soins gratuits. Et je crois que cet indice n'est pas trop généreux.

Or d'après la statistique fiscale de 1961, le salaire moyen au Québec a été de $3,517.

Toujours d'après les statistiques fiscales, 307,647 Québecois sur 1,934,534, soit 15 pour cent seulement (les agriculteurs sont exclus), gagnent plus de $100 par semaine.

Quant à la classe agricole, l'on sait dans quel marasme elle est plongée. En 1961, il n'y a eu que 1,031 cultivateurs qui ont fait des rapports d'impôt au Québec et le revenu moyen de ces privilégiés était de $4,618.

Et dans le mémoire présenté au Conseil des Ministres en février 1962 par l'Union catholique des cultivateurs, il est dit textuellement: "Depuis 5 ans, le revenu net de la ferme québecoise moyenne se situe entre $1,500 et $1,800 par année." Il s'agit des revenus de l'exploitation agricole.

Toutes ces données nous indiquent que dans la province la masse peut être classée comme étant médicalement indigente.

C'est pour cette raison que, à mon sens, l'assurance-santé dentaire obligatoire serait la seule façon d'apporter une amélioration vraiment appréciable de la santé dentaire de la population.

Mais comme les ressources financières du gouvernement et les effectifs de la profession sont limités, il ne faudrait pas prendre les bouchées trop grosses.

La façon la plus pratique de procéder serait sans doute de fournir les soins à la population de la première année scolaire au cours de la première année d'application d'un programme de santé dentaire.

Pourquoi la première année scolaire? Tout simplement parce que le contrôle est plus facile. Il est toujours difficile en effet d'atteindre les préscolaires.

La deuxième année d'application du plan, si la profession répond à la demande, et si le gouvernement était consentant, l'on pourrait inclure les enfants qui entrent en première année et conserver dans le plan ceux qui sont maintenant rendus en deuxième, ainsi de suite jusqu'à un âge à déterminer.

Ce processus s'inspire de la prudence. De cette façon, l'Etat et la profession ne se lanceraient pas dans une aventure à issue inconnue.

Coût d'un tel programme.—La première année: les dépenses seraient de l'ordre de $1½ million; la deuxième année: $2⅓ millions.

Façon de calculer: On estime qu'aux Etats-Unis les traitements pour les enfants de six ans (orthodontie exclue) coûteraient en moyenne $30 par enfant.[12] Or les honoraires étant moins élevés au Canada, l'on peut fixer ce montant à $25. Alors que pour les 143,469 enfants en première année scolaire:[13]

$25 x 145,000 = $3,625,000

On peut évaluer que 40 pour cent des soins requis seraient dispensés:

$3,625,000 x 40% = $1,450,000, soit $1½ million.

Aux Etats-Unis, on estime à $20 le coût d'entretien pour la deuxième année. Fixons-le à $15. Alors pour nos enfants en deuxième année scolaire:

$15 x $145,000 = $2,175,000

$2,175,000 x 40% = $870,000

$870,000 plus $1,450,000 = $2,320,000, soit $1⅓ million.

Financement. — Les fonds nécessaires pourraient être prélevés grâce à l'imposition d'une taxe sur les eaux gazeuses, les sucreries en général, la gomme à mâcher. Songez que la production d'eau gazeuse au Canada a été en 1963 de 178,036,938 gallons.[14] En 1961, il s'est vendu pour $12,584,883 de gomme à mâcher (prix du manufacturier, taxe non incluse) et pour $65,858,558 de chocolats.[15]

Un tel plan permettrait aux dentistes des unités sanitaires et des services de santé des différentes villes qui en ont un de consacrer plus de temps à l'éducation et à la prévention.

Conclusions

1. A la lumière de ces faits, il semblerait logique de recommander au gouvernement: (a) la mise sur pied d'un plan de bien-être pour les indigents: (b) l'instauration d'un plan d'assurance-santé dentaire pour les enfants. Ces recommandations ne peuvent se faire que par la présentation d'un mémoire, qui pourrait d'ailleurs toucher bien d'autres points,

mais qui devrait donner préséance à ces aspects particuliers.

2. En ce qui a trait aux compagnies d'assurance commerciales, nous ne pouvons jouer qu'un rôle consultatif, mais tout de même faudrait-il le jouer! Il y a avantage à le faire, tant pour la population que pour la profession. 'L'assurance-accident pour écoliers' de l'Assurance-vie Desjardins a été améliorée à la suite de suggestions de dentistes. De nouvelles suggestions ont été formulées et elles sont présentement à l'étude.

3. Quant aux corporations dentaires, nous pouvons, non pas seulement apporter des recommendations, mais adopter une attitude agissante. Si, après l'étude préliminaire dont il est fait mention plus haut, la corporation dentaire se révèle aussi prometteuse qu'il semble, il faudrait sans tarder la mettre au monde.

De toute façon, les travaux préliminaires devraient commencer dès demain.

La question de l'assurance-santé dentaire est très complexe. Elle soulève une foule de problèmes pour lesquels il n'existe pas de solution-miracle. A ce tournant de son histoire, la profession dentaire doit, à l'instar de la profession médicale, se pencher avec attention sur cette question.

Summary

The author discusses the present status of dental health insurance in Quebec. Reference is made to compulsory, government-sponsored insurance schemes and to voluntary prepayment plans. Compulsory, government-sponsored health insurance is unlikely to come to Quebec soon because (1) the federal government abandoned a projected entry into this field in 1945, (2) health is under provincial jurisdiction, (3) current fiscal resources of the Quebec government are inadequate to pay for a provincial health insurance scheme, and (4) there is as yet no insurance for physicians' services which usually precedes dental insurance.

The author outlines the principles of dental service corporations and commercial health insurance plans. He compares the relative advantages and disadvantages of each in terms of extent of protection offered, premiums, operation and administration.

Government assistance is required for those segments of the population who cannot pay premiums under any kind of plan.

The author advocates a government-sponsored incremental dental care scheme for school children paid out of revenue derived from additional taxation to be levied on carbonated beverages, candies and chewing gum.

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8 Bellevue

résumés

MONILIASE BUCCALE

F. V. Howell. D. Progress 3:172, 1963.

Des lésions chroniques dans la bouche peuvent s'infecter avec un champignon, le *Candida albicans*. L'auteur a traité 47 cas d'infections d'étiologie diverse avec une formule d'amphotéricine B (antibiotique contre les champignons) dans de *l'Orabase,* un véhicule qui a la propriété de se maintenir dans la bouche. Les résultats furent excellents nonobstant la cause ou le genre de lésion.

Les praticiens peuvent se servir avec avantage de cet agent pour les irritations causées par des prothèses, pour les excroissances de champignons après une thérapie antibiotique (topique ou parentérale) ou pour toute lésion chronique où un champignon peut être un facteur. L'action protectrice du véhicule peut être bienfaisante, même s'il n'y a pas de champignon en cause.

IRRITATION CAUSÉE PAR LE REFROIDISSEMENT EN DENTISTERIE OPÉRATOIRE

C. A. Ostrom, D.Progress 3:138, 1963.

La préparation d'un grand nombre de cavités à peu près identiques, grâce à un processus expérimental nouveau, a permis de comparer les effets irritants des méthodes de refroidissement utilisées de nos jours. Le refroidissement à l'air et à l'eau n'occasionne pas ou peu de réaction pulpaire; au contraire, le refroidissement à l'air produit instantanément un déplacement des noyaux d'odontoblastes dans les tubuli dentinaires. Ces recherches font connaître un agent, la toxine *Botulinus,* qui sert de test dans des cavités préparées avec une méthode ou l'autre pour refroidir la dent. La toxine passe mieux au travers des tubulis dentinaires quand le fraisage se fait au refroidissement à l'air et à l'eau parce que la perméabilité de la dentine est normale; au contraire, le refroidissement à l'air seul modifie la structure de la dentine et empêche la pénétration de la toxine.

L'EFFET DES CIMENTS IMPRÉGNÉS DE FLUOR SUR LES CARIES INTERPROXIMALES

G. M. Jinks. J. Den. Children 30:87, 1963.

L'auteur a entrepris des recherches sur l'influence des ions de fluor sur les espaces interproximaux des deuxièmes molaires primaires et la première molaire permanente et aussi, dans certains cas, entre les deux molaires primaires. Il a utilisé le silicate Syntrex comme véhicule dans lequel il a incorporé un silico-fluorure de sodium. Il plaçait séparément, pour les malaxer ensemble, sur une plaque de verre froide les proportions voulues de poudre et deux gouttes de liquide; il déposait près du liquide environ 15 mmgms de silico-fluorure de sodium et 35 mmgms d'alliage d'argent (pour rendre le ciment radiopaque). Le silico-fluorure de sodium et l'alliage étaient ensuite ajoutés au liquide et malaxé en un mélange homogène. Il ajoutait à ce mélange la poudre de silicate et il malaxait le tout jusqu'à ce qu'il devienne dur. Le ciment gris ainsi obtenu était utilisé pour obturer la cavité.

Il prenait des radiographies coronaires

de chaque côté quand les premières molaires permanentes faisaient leur éruption; il classifiait ses statistiques en notant les dents qui ne se cariaient pas comme "réussite," celles qui cariaient comme "échec" et les autres "incertaine." Les autres quadrants étaient utilisés comme témoins. Il notait une "réussite" quand la dent en contact avec le ciment ne se cariait pas et quand, au contraire, une cavité interproximale se formait dans le quadrant opposé, où la dent voisine n'avait pas été obturée avec le ciment. Il notait un "échec" quand une carie se formait sur la surface proximale d'une première dent permanente malgré la présence d'un ciment sur la surface adjacente de la molaire primaire. Il notait comme "incertaine" les dents où aucune cavité ne se formait sur les faces proximales.

Les données qui indiquèrent des "réussites" pour 73 pour cent des dents traitées, avec possibilité d'augmenter ce pourcentage au cours de recherches supplémentaires, montrent que cette méthode de prévenir la carie dentaire est pratique et possible. On peut incorporer des fluorures dans des ciments placés dans des dents temporaires sans causer de dommage à la pulpe tout en créant un effet préventif de la carie sur les dents adjacentes. Les dentistes devraient utiliser les fluorures dans les ciments et obtenir ces résultats appréciables.

ESSAI EN CLINIQUE D'UN NOUVEL ANESTHÉSIQUE

Victor Goldman et William Gray. Brit. D.J. 115:59, 1963.

Les auteurs, dans le but de se faire une idée d'ensemble de sa valeur en chirurgie dentaire, ont entrepris des recherches cliniques d'envergure du nouvel anesthésique local, la propitocaine (connue aussi sous le nom de L.67 ou Citanest, Astra). La propitocaine est de la même famille chimique que la lidocaine (Xylocaine). Elle lui ressemble, mais elle a un effet moins long que la lidocaine.

Deux solutions de propitocaine ont été utilisées en comparaison avec la lidocaine chez au-delà de 12,000 patients.

Leurs recherches ont prouvé qu'une solution à trois pour cent de propitocaine, avec 1:300,000 d'adrénaline, se compare à une solution de deux pour cent de lidocaine, avec 1:8,000 d'adrénaline; et que, deux heures après l'injection, dans une proportion plus considérable de cas, les tissus mous étaient revenus à l'état normal.

On a noté une douleur post-opératoire moins forte et des effets secondaires immédiats moins fréquents.

L'induction de l'anesthésie fut de même durée avec les deux solutions. Il n'y eut pas de différence notable entre les deux solutions dans la durée de l'anesthésie au cours de l'injection à l'épine de Spix.

TRAITEMENT DE LA PULPE AVEC LES CORTICOSTÉROIDES (KORTIKOSTEROIDBEHANDLUNG DER PULPA PATHOLOGISCH IN FRAGE GESTELLT)

L.-J. Baume et G. Fiore-Donno. Zahnärztl. Welt/Reform 64:no 14:422, 25 juillet, 1963.

Des études entreprises en clinique et en laboratoire hématologique et histo-pathologique sur 158 dents humaines qui avaient été traitées semblent indiquer que l'usage des corticostéroides en combinaison avec des antibiotiques constitue un procédé douteux.

L'abolition des symptômes, en vertu de cette thérapeutique, masque des réactions histo-pathologiques qui ne sont pas encore connues à fond. De plus on n'a pas encore prouvé que la pulpe réagit aux corticostéroides comme les autres tissus d'origine conjonctive. Ni une réaction post-opératoire favorable, ni une série d'échantillons normaux de sang prélevés dans la pulpe peuvent dissimuler des dommages que produit à la longue dans la pulpe cette combinaison de stéroides et d'antibiotiques: changement dans le tissu conjonctif, inflammation chronique persistante et arrêt dans la production de la dentine.

page éditoriale

Le livre de rendez-vous:

maître ou serviteur . . .

Il est une remarque que l'on entend assez souvent de la part des dentistes: nous avons une profession individualiste.

Rien de plus vrai, car notre travail nous enferme dans nos bureaux à longueur de journée sans que nous ayions l'occasion de rencontrer qui que ce soit d'autre que nos patients. Même si, par affaire, nous devons rencontrer quelqu'un, il faut que ce soit en dehors de nos heures de bureau, puisque les rendez-vous, pris un certain temps d'avance, ne peuvent tout de même pas être déplacés à tout propos. Il arrive même que, pris dans l'engrenage des rendez-vous successifs, nous hésitons à consacrer trop de temps au téléphone, instrument dont nous nous servons surtout lors de courts moments de répit.

Il résulte d'une telle situation plusieurs faits dont surtout deux attirent l'attention.

D'abord ce qu'on pourrait appeler l'esclavage des rendez-vous. L'affluence de ceux-ci fait que vient un temps où l'on ne sait plus où se donner de la tête; on ne sait plus quand écrire la lettre qu'on veut écrire, quand on verra son comptable pour régler la question d'impôt, quand on rencontrera son propriétaire pour discuter loyer; tout cela, parce que les rendez-vous prennent tout le temps disponible et on se laisse "flotter" à leur gré plutôt que de diriger la barque à sa guise. Ainsi on perd presque son caractère humain pour devenir machine. Tout cela est probablement le résultat du nombre décroissant de dentistes par rapport à la population qui croît en nombre et en exigence, d'où les louables efforts de nos associations nationale et provinciales en vue du recrutement.

Autre fait résultant de notre individualisme forcé: nous manquons les rencontres entre confrères. Contrairement aux médecins, qui, chaque matin, ont l'occasion de se rencontrer, de discuter leurs cas, d'échanger leurs opinions, nous sommes pris, entre les quatre murs de nos bureaux, à régler des problèmes, des cas, sans qu'il y ait parfois possibilité de consultation. Il est sûrement plus facile pour des consultants, comme les médecins, de se déplacer pour examiner un patient immobilisé dans son lit d'hôpital que pour un patient de dentiste de se déplacer pour une consultation alors que nous sommes immobilisés dans nos bureaux. On pense tout de suite à l'avantage que peut avoir, à ce point de vue, en tout cas, la pratique en groupe, qui devient de plus en plus populaire, et avec raison semble-t-il.

Au milieu de cette course affolante que peuvent être nos journées et nos semaines, quel temps prenons-nous pour perfectionner nos connaissances et nos techniques? La lecture de périodiques est une piètre solution, car une nouvelle technique s'apprend autant avec les mains qu'avec les yeux. "Lorsque nous étions à l'Université, nous en apprenions beaucoup plus à causer avec les professeurs que durant les cours eux-mêmes." Si cela (et on l'a entendu souvent) est si vrai, pourquoi ne

pas viser à la même source de perfectionnement? Comment? Par des rencontres multipliées entre confrères, non pas tous les soirs pour en devenir bornés à la dentisterie, mais, au minimum, par notre assistance régulière aux réunions de nos Sociétés dentaires locales ou régionales, aux congrès provinciaux et nationaux. On reproche parfois à ces événements de nous présenter des techniques "au dessus de nos moyens et pas applicables chez nous;" rien de plus vrai, mais l'occasion est toute choisie pour rencontrer des confrères, des spécialistes, d'anciens professeurs, qui deviennent alors des sources riches en renseignements de toutes sortes et aptes à perfectionner celui qui va y puiser.

D'ailleurs, pour ce qui est des Congrès, la vacance qu'ils constituent en vaut la peine; même si les techniques et les données des conférenciers sont parfois osées et d'application difficile, on ne peut jamais dire qu'on n'y a rien appris. Mais on a tout de même changé la routine pour quelques jours et on en revient chez soi avec une nouvelle ardeur, consciente ou non.

C. T.

les actualités dentaires

L'Association

DÉCÈS DU DOCTEUR STANLEY PHILLIPS

Le docteur Stanley J. Phillips est décédé le 21 avril, à Oshawa, Ontario. Le docteur Phillips avait activement participé au travail d'organisation de la profession dentaire, plus particulièrement, de 1953 à 1960, comme président du comité des finances de l'Association dentaire canadienne. Il avait collaboré intimement à la Durham Ontario Dental Association, au conseil du Collège royal des chirurgiens-dentistes d'Ontario et au conseil des gouverneurs de l'Association dentaire canadienne.

Né en 1890, à Dundalk, Ontario, le docteur Phillips avait terminé ses études dentaires à Toronto, en 1917. Il fit du service militaire et commença à exercer à Oshawa, où il prit une part active aux affaires municipales, surtout dans le domaine de l'enseignement. En 1960, la ville d'Oshawa a reconnu son dévouement en donnant son nom à une école publique. A cette occasion, on a dit de lui: "Quand il est contre un projet, il peut être plus agréable que la plupart de ceux qui sont en faveur, parce qu'il ne cherche que la vérité et qu'il a un profond respect pour les autres; il ne manifeste que son droit de penser et de s'exprimer comme il l'entend."

Le Canada

IL Y A PLUS DE DENTISTES: LA PROPORTION NE S'AMÉLIORE PAS

Le Canada compte 6,103 dentistes, 104 de plus qu'il y a un an, mais la proportion des dentistes par rapport à la population demeure la même que l'an dernier, c.-à-d. un dentiste par 3,096 habitants. Au cours des cinq dernières années, cette proportion s'était constamment détériorée; cette année, elle demeure la même que l'an dernier. Quatre provinces (Nouveau - Brunswick, Québec, Saskatchewan et Alberta) ont plus d'habi-

tants par dentiste qu'en 1962. La proportion de la Colombie britannique est la meilleure (1 dentiste par 2,325 habitants) et celle de Terre-Neuve est la pire (1:10,234).

Ces constatations paraissaient dans "Le nombre des dentistes au Canada," publié dans la livraison de mai du *Journal de l'Association dentaire canadienne*. Ce rapport est compilé, chaque année, par le Bureau des recherches économiques de l'Association.

PERMISSION ACCORDÉE À DES CORPORATIONS DE SERVICES DENTAIRES

La profession dentaire d'Alberta et celle de Nouvelle-Ecosse ont demandé à la législature de permettre la mise sur pied de corporation de services dentaires patronisée par les dentistes. Un amendement à la loi dentaire présenté à la législature d'Alberta fixe le 1er juillet comme date ultime, après quoi l'association pourra offrir à la population un plan de services dentaires ou établir une corporation sans but lucratif pour administrer ce plan. La législature de Nouvelle-Ecosse a sanctionné un projet de loi établissant la Nova Scotia Dental Services Incorporated.

Des communiqués de journaux font savoir que les ministres du cabinet d'Alberta ont déclaré qu'ils espèrent que les dentistes établiront un plan de pré-paiements, leur évitant ainsi la nécessité d'inclure les services dentaires dans le plan médical d'Alberta. A date, ni l'Alberta, ni la Nouvelle-Ecosse projettent de mettre sur pied un plan spécifique de pré-paiements.

Aux Etats-Unis, 23 Etats ont des corporations de services dentaires.

LES MÉCANICIENS DE LA COLOMBIE BRITANNIQUE S'AGITENT

Le *Bulletin de l'Association dentaire de la Colombie britannique* publiait les lignes qui suivent dans sa livraison d'avril:

> La session de 1964 de la législature de la Colombie britannique vient de s'ajourner et on a rarement vu autant de pression s'exercer sur les députés pour qu'ils se prononcent en faveur d'un projet de loi spécifique. Les mécaniciens ont entrepris une campagne venimeuse pour discréditer le Collège des chirurgiens-dentistes de la Colombie britannique, à un point tel qu'il était difficile aux dentistes de leur tenir tête, en apportant des rectifications à toutes les fausses-tées qu'ils alléguaient. Des annonces d'un quart de page, renfermant une multitude d'erreurs, étaient publiées dans les journaux de Vancouver pour qu'elles se syncronisent parfaitement à la présentation du budget du Ministère de la santé, durant laquelle les députés peuvent soulever n'importe quel sujet se rapportant à la santé.
>
> Comme on devait s'y attendre, la minorité bruyante de quatre ou cinq députés a tenté de faire condamner le supposé manque de collaboration de la part des membres du Collège des chirurgiens-dentistes. Ils cherchaient à faire admettre comme bill privé des amendements à la loi dentaire et à la loi des techniciens dentaires, qui auraient eu comme but de retrancher la clause des certificats de santé buccale pour que les mécaniciens puissent envahir le domaine de la prothèse immédiate.
>
> Le président, les membres du conseil de Victoria, le conseiller en relations extérieures, le secrétaire exécutif, assistés d'un groupe de dentistes combattifs de Victoria, ont consacré plusieurs heures à expliquer la vraie situation à des députés indécis. Malgré des communiqués contraires de la part de certains journaux, le Ministre de la santé a adopté une position ferme en refusant de changer la législation présente qui restreint les activités des mécaniciens.
>
> Il apparut très clairement, aux derniers jours de la session, que les mécaniciens dentaires avaient manifesté trop d'activité et qu'ils avaient indisposé le plus grand nombre des députés; ceux-ci ont senti la malhonnêteté de leur argumentation.
>
> Le président du conseil, en dirigeant la stratégie pour faire face à ce problème immédiat, n'a pas eu la tâche facile. La réfutation des mensonges des mécaniciens devait se faire de façon à souligner leur situation fausse, sans toutefois provoquer des réactions acerbes de leur côté. Des organismes et des individus qui jusqu'à cette heure ne s'étaient pas prononcé tellement en faveur des professions de santé ont accordé aux dentistes un appui valable. Plusieurs membres de la législature ont fait un excellent travail et, à l'extérieur, des media d'information se sont prononcés clairement en faveur des professionnels.

CORRECTION

Dans les actualités dentaires, sous le titre "Les denturistes d'Alberta font du recrutement," on rapportait un extrait de journal qui citait les paroles d'un denturiste d'Alberta qui disait que l'Université d'Alberta a un cours de deux ans pour former des techniciens dentaires.

Cette nouvelle ne rectifiait pas une erreur que contenait cette déclaration. L'Université d'Alberta, pas plus d'ailleurs que les autres facultés dentaires du Canada, n'a pas de programme d'études pour les techniciens dentaires.

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La fonction d'un service dentaire à l'hôpital

par J. R. Boutin, M.D., Montréal P.Qué.*

Hospital dental departments should provide treatment, promote dental health education within the hospital, contribute to undergraduate and graduate instruction, and participate in research.

On ne peut parler d'un service dentaire dans un hôpital sans l'envisager en relation avec les autres services cliniques de l'institution. Plus nous en approfondissons la nature, plus nous réalisons que le rôle du service de chirurgie dentaire est essentiellement le même que celui de tout autre service clinique médical, c'est-à-dire, une participation active et intégrale à la vie de l'hôpital et à son rôle dans la vie communautaire. Or, le rôle de l'hôpital moderne comporte quatre fonctions:

1. le traitement des malades et des blessés, par la médecine curative;
2. l'amélioration de la santé publique, par la médecine préventive;

Communication présentée au congrès annuel de l'Association dentaire de la province de Québec, le 23 mai 1964.
*Directeur médical de l'Hôpital Notre-Dame, Montréal.

3. la formation du personnel professionnel et auxiliaire, par l'entraînement et l'enseignement;

4. l'avancement de la science médicale, par la recherche.

Aujourd'hui, on ne conçoit pas la fondation d'un nouvel hôpital sans avoir cette tétrade constamment présente à l'esprit.

Nous attendons de chacun de nos services cliniques une participation active à chacun de ces domaines et voilà ce que nous attendons également du service de chirurgie dentaire. Le service dentaire, nous le considérons comme tout autre service clinique, avec les mêmes obligations, les mêmes responsabilités et soumis aux mêmes exigences et au même contrôle.

Le traitement des malades et des blessés

Dans la fonction primordiale du traitement des malades et des blessés, le service de chirurgie dentaire remplit exactement le même rôle que celui des autres services.

Nous demandons à nos chirurgiens dentistes d'accorder aux patients dentaires la même qualité de soins que nous exigeons des médecins chirurgiens, pour le patient médical. La compétence et la conscience professionnelle sont de rigueur au même titre.

L'examen subjectif, l'examen physique objectif doivent être complets. Les consultations indiquées doivent être demandées. Les examens de laboratoire et de radiologie s'imposent en chirurgie dentaire, comme en chirurgie générale. Des protocoles d'opération, d'anesthésie, doivent être rédigés et inscrits au dossier médical. Dans un hôpital moderne, digne de ce nom, il n'existe pas deux qualités de soins, il n'en existe qu'une, la meilleure.

Il ne doit pas exister, non plus, dans un hôpital général, un traitement partiel du malade. De plus en plus, le patient requiert des soins complets, un traitement total. Voilà pourquoi, on ne devrait pas concevoir, en 1964, un hôpital sans les soins dentaires. Le médecin et l'hôpital ne peuvent pas remplir leur rôle intégralement, sans le service dentaire. Les règlements de la Loi des hôpitaux, qui seront promulgués incessamment, comporteront un article exigeant que tout hôpital soit en mesure d'assurer aux malades hospitalisés des soins dentaires urgents: c'est un strict minimum que la Loi imposera aux hôpitaux.

De plus, le soin total du malade hospitalisé exige que le patient dentaire soit suivi conjointement par un médecin ou un chirurgien qui assume la responsabilité de l'aspect médical des soins donnés au malade. Il ne saurait être admissible qu'un malade hospitalisé pour soins dentaires quitte l'hôpital avec un diabète ou un cancer qui aurait pu être dépisté par un examen médical complet, fait par le médecin.

Que nous soyons en présence d'un malade médical ou d'un patient dentaire, nous assumons la même responsabilité de le traîter avec la meilleure qualité de soins possible et le service de chirurgie dentaire assume, à l'instar de tous les autres services, la même responsabilité.

L'amélioration de la santé publique

La deuxième grande fonction à laquelle le service dentaire participe, c'est l'amélioration de la santé publique par la médecine préventive et, dans le cas qui nous intéresse, par l'hygiène dentaire. Nous vous rappelons que le malade, qui se présente pour une simple amygdalectomie, subit des examens de routine, une radiographie pulmonaire, un examen physique complet. Il est normal qu'il en soit de même pour le patient dentaire, si le service veut remplir le rôle exigé par la médecine préventive. Voilà pourquoi le malade doit être admis et traité conjointement par le dentiste et le médecin. Mais il est un domaine de la médecine préventive qui devrait être préconisé davantage à l'hôpital, c'est celui de l'hygiène dentaire. Je suis toujours surpris de constater, qu'en réalité, on lui fait jouer un rôle de second plan. Il est malheureuse-

ment vrai que plusieurs médecins considérent, à tort, que l'hygiène dentaire n'est pas de leur ressort. Et pourtant, les médecins devraient être les premiers à attirer l'attention de leurs malades sur l'hygiène dentaire, à les orienter vers le dentiste. Comment pallier à cette lacune, si ce n'est par une action plus positive, par une attitude plus dynamique des chirurgiens dentistes eux-mêmes. Dans notre hôpital, nous avons été des plus heureux de constater que le chef de notre service de chirurgie dentaire énonçait, dans son programme de réorganisation, l'objectif de l'examen dentaire de routine de tous les malades hospitalisés en salle commune. Voilà, à mon avis, de la médecine préventive bien comprise et une magnifique compréhension du rôle du service de chirurgie dentaire dans sa participation à l'amélioration de la santé publique.

La formation du personnel professionnel et auxiliaire

La troisième fonction, c'est la formation du personnel professionnel et auxiliaire. Que ce soit dans l'hôpital universitaire ou dans l'hôpital régional, le service de chirurgie dentaire doit faire de l'enseignement, doit participer à l'entraînement du personnel. Auprès des médecins, auprès des infirmières, auprès des malades, son programme d'hygiène dentaire doit être promulgué et disséminé. Les problèmes dentaires doivent être étudiés en commun. Les dentistes doivent participer activement aux assemblées scientifiques du personnel médical et contribuer par leur enseignement à une meilleure orientation dentaire du médecin. Les études cliniques des cas mixtes devraient être entreprises conjointement. Les publications scientifiques des dentistes devraient être faites en collaboration avec les médecins. Le plus souvent, un aspect médical s'ajoute à l'aspect dentaire et les dentistes auraient tout intérêt à se joindre aux médecins dans la présentation de leurs travaux. Certes, dans les hôpitaux affiliés à la Faculté de médecine, la fonction de l'enseignement prend une place de premier plan avec les programmes d'internat et de résidence dentaires. Cette formule devrait se développer sur une plus grande échelle dans nos institutions. Nous sommes au tout début dans ce domaine.

Il appartiendra, sans doute, au conférencier suivant de s'attarder davantage sur le programme de la formation professionnelle dentaire à l'hôpital.

L'avancement de la science médicale

Enfin, quatrième fonction, l'avancement de la science médicale, par la recherche.

Il y a quelques décades, la recherche était à peine envisagée dans nos hôpitaux. Les autres activités semblaient accaparer toutes les énergies. La guerre survint avec tout son cortège de problèmes à résoudre et, soudainement, l'esprit de recherche se développa avec une acuité jamais connue auparavant. On se rendit compte rapidement que le progrès au service du bien-être de l'homme dépendait, en grande partie, de la recherche. Si l'on ne voulait pas, dans le domaine de la civilisation, avancer à pas de tortue, au rythme lent des siècles précédents, il fallait que, dans la mesure où des hommes déployaient leur énergie à mettre en pratique les connaissances acquises, dans la même mesure, d'autres h o m m e s devaient se dépenser à accroître le champ des connaissances humaines.

Nous vivons, aujourd'hui, dans une ère où l'homme sent le besoin de fouiller avec un égal acharnement, d'une part, la cellule et l'atome et, d'autre part, les espaces illimités du cosmos.

Il n'est pas nécessaire d'avoir d'immenses laboratoires et un personnel de chercheurs considérable pour contribuer à la recherche. Certes, la recherche fondamentale exige des locaux, des laboratoires, des chercheurs et des techniciens à temps complet. Toutes ces exigences requièrent des octrois considérables. Certes, la recherche fondamentale ne peut être réalisée dans tous les hôpitaux.

Mais il ne faut pas oublier la recherche

clinique qui, elle, accomplit un travail considérable, par l'étude des dossiers cliniques, par l'appréciation comparative des résultats thérapeutiques obtenus, par l'analyse des statistiques, par l'étude des problèmes innombrables non encore résolus.

Des domaines communs à la médecine et à la chirurgie dentaire, dans les hôpitaux, peuvent faire l'objet de recherches, telles les malformations congénitales ou encore les prothèses maxillaires, à la suite de traumatismes de la face: pour n'en citer que quelques exemples.

Conclusion

Certes, il faudrait s'arrêter plus longuement à chacun de ces aspects du rôle de l'hôpital en général et du rôle du service dentaire en particulier. Malheureusement, le temps manque, mais je pense que ces quelques considérations vous aideront à mieux comprendre la fonction du service dentaire à l'hôpital.

Intégration du service dentaire et de son personnel

Avant de vous laisser, je voudrais m'attarder quelques instants sur l'intégration du service dentaire dans l'organisation hospitalière et, plus particulièrement, sur l'intégration du personnel dentaire dans le personnel médical.

A mon humble avis, le rendement d'un service dentaire dans un hôpital est proportionnel à son intégration dans l'organisation clinique générale et à l'assimilation du personnel dentaire dans le personnel médical.

Je sais bien que les médecins ne sont pas tous prêts à accepter l'intégration des dentistes au sein de leur personnel. Je sais également, par ailleurs, que les dentistes n'ont pas suffisamment lutté pour obtenir leur propre intégration et qu'ils ont trop facilement abandonné la partie.

Et pourtant, la chirurgie dentaire n'est-elle pas une branche de la chirurgie, au même titre que n'importe quelle autre spécialité chirurgicale?

Pourquoi cette ségrégation des dentistes à l'hôpital pratiquée par les membres du personnel médical? Vous parcourez les règlements des hôpitaux et vous lisez le plus souvent: "Règlements du personnel médical et dentaire." La distinction est nette, elle saute aux yeux. Et pourtant, cette distinction, à mon sens, n'a pas sa raison d'être. Elle est le résultat de la routine, de la tradition, de l'optique de supposés experts consultants en administration hospitalière qui, à la question suivante: "Un chirurgien dentiste peut-il être 'élu membre du personnel médical, ou officier du Comité exécutif?' répondront: 'Un dentiste ne peut pas être membre du personnel médical puisqu'il n'est pas médecin.' Seuls, les médecins peuvent être membres du personnel médical et occuper un poste au sein de l'Exécutif du bureau médical."

Cette optique m'apparaît surannée. Après tout, que signifie le terme 'médical'?

Quillet définit 'médical': (1) qui appartient à la médecine, (2) propre à guérir.

Personnellement, je suis convaincu que la chirurgie dentaire 'appartient à la médicine' au même titre que n'importe laquelle spécialité chirurgicale. Toutes ces spécialités sont des branches de la médecine. Quant à la deuxième définition que la chirurgie dentaire soit considérée comme une spécialité propre à guérir, j'ai toutes les raisons de le croire. Voilà ce que signifie le terme 'médical,' il n'a jamais voulu signifier: 'qui appartient aux médecins.'

Par ailleurs, la 'médecine,' c'est la science qui enseigne les moyens de conserver la santé et de traîter les maladies. Comment oserait-on déclarer que la chirurgie dentaire n'est pas de la médecine?

Est-ce que la chirurgie dentaire, autrefois, n'était pas pratiquée par des médecins qui s'intéressaient plus particulièrement à cette branche de la médecine? Si ces médecins ont été remplacés éventuellement par des spécialistes de l'art dentaire, pourquoi ces nouveaux spécialistes ne pourraient-ils pas, dans nos

hôpitaux, faire partie du personnel médical?

Bien loin d'encourager, dans les hôpitaux, la formule d'un personnel médical et dentaire, nous devrions nous y objecter en demandant la généralisation de la formule du personnel médical, qui inclut les dentistes. Dans mon propre hôpital, le personnel médical comprend diverses catégories, dont les médecins honoraires, les médecins consultants, les médecins réguliers, les médecins éligibles et les spécialistes de l'art dentaire. Pourquoi ces nouveaux spécialistes ne pourraient ils pas, dans nos hôpitaux, faire partie du personnel médical.

Nous avons même inclus les biochimistes qui possèdent un doctorat es-sciences et qui cependant ne participent qu'au diagnostic. Le chef du service de chirurgie dentaire fait partie du Bureau médical, du Comité de nominations médicales. Il pourrait même, par élection, faire partie de l'Exécutif du bureau médical. En un mot, il a les mêmes privilèges que les autres chefs de service clinique. Seule, la loi peut limiter ses activités à l'hôpital. Nous innovons? Peut-être! Mais nous nous en glorifions. Il ne suffit pas de parler du traitement total du malade, il faut mettre en action l'équipe complète qui donnera ce soin total.

La médecine contemporaine a cessé depuis longtemps d'être individualiste. La science moderne l'a rendue trop complexe, trop étendue. Elle ne peut plus être absorbée par un individu, si génial soit-il. La médecine est devenue l'œuvre d'une équipe et la pratique de groupe s'impose à l'attention de tous. Le chirurgien dentiste doit faire partie de cette équipe.

Il vous appartient, messieurs, de rompre les liens qui vous séparent de vos confrères les médecins, de secouer les traditions et les inerties, de bousculer les conservateurs qui vous barrent la route. Imposez-vous, par votre compétence et votre enseignement, à l'attention de vos confrères de la médecine. Faites-leur comprendre que votre spécialité est indispensable au soin total du malade et démontrez-leur les immenses bénéfices que vous pouvez apporter à l'équipe médicale de l'hôpital.

Si vous voulez vraiment jouer votre rôle dans les hôpitaux, vous devez vous intégrer dans le personnel médical et exiger l'abolition des vestiges de la ségrégation.

Mais, pour réaliser cet idéal, il faut d'abord vous en convaincre vous-même, puis y consacrer toutes vos énergies. Vous le devez à vos malades, vous le devez à nos malades et vous le devez à la santé publique.

Summary

A modern hospital provides curative treatment, preventive measures for the improvement of public health, and education and training for professional and auxiliary personnel. A hospital also serves to advance medical sciences through research. Like other departments a hospital dental department is expected to fulfil these four needs. The dental department must provide treatment for dental disorders that relate to or originate from the patient's systemic condition. The department should promote dental health education throughout the hospital. The department is expected to contribute to undergraduate and graduate instruction of professional and auxiliary personnel. And the dental department should participate in scientific research—particularly clinical research. Hospital medical and dental staffs should be fully integrated and governed by the same regulations. Some physicians are still reluctant to grant dentists the same privileges that are accorded to physicians. A hospital dental department can only achieve its objectives if its status is similar to that of any other hospital department. Full recognition of dentists and hospital dental departments will only be achieved if competent, properly qualified dentists are willing to assert their rights in this matter. Too often have dentists tended to evade this issue.

1560 est Sherbrooke

L'organisation d'un service dentaire dans un hôpital et sa répercussion sur l'enseignement aux étudiants en chirurgie dentaire

par Antoine Raymond, D.D.S., Montréal, P.Qué.*

Montreal's Notre-Dame Hospital has reorganized its dental department to function like other medical departments. There are four sections—oral surgery, maxillo-facial prosthetics, orthodontics and periodontics. Interdisciplinary surgical teams will shortly be organized. Dental internships and undergraduate and graduate instruction will begin this year.

Dans les hôpitaux canadien-français de la province de Québec, la chirurgie dentaire n'a jamais été vraiment organisée. Quelques confrères ont fait du service hospitalier, soit à l'occasion, soit de façon régulière. Il y a eu de petits noyaux qui se sont formés ici et là. Les activités et les prérogatives de la chirurgie dentaire à l'hôpital ont toujours été assez limitées. Les facilités de travail à l'hôpital pour le chirurgien-dentiste ont toujours laissé à désirer. Bref, la chirurgie dentaire n'a jamais vraiment pris forme dans les cadres hospitaliers.

Explications d'une telle situation

Cette situation a toutefois des raisons. Elle s'explique par le fait que les dentistes ne sont pas formés à la pratique à l'hôpital. Ils ne sont pas formés à la procédure hospitalière, parce que la faculté de chirurgie dentaire n'a jamais eu les moyens de donner cette formation. L'hôpital universitaire, promis depuis dix ans, n'est jamais venu. Par ailleurs, les hôpitaux ne se sont jamais préoccupés de former les dentistes au travail hospitalier, comme ils le font pour les médecins.

Conséquences

Les professions médicale et dentaire qui, pourtant, poursuivent le même but, i.e. une meilleure santé pour la population, ne se sont jamais rencontrées de façon régulière et soutenues pour discuter des problèmes complexes que présentent souvent les dents, les maxillaires et l'appareil masticateur.

Un certain nombre de patients souffrent d'affections de la bouche, des dents ou des maxillaires et ces maladies ont des répercussions sur la santé générale. Des malades souffrent de maladies constitutionnelles et ces maladies ont des répercussions sur les dents et les maxillaires.

Autant de problèmes qui souvent restent en suspens et ne sont jamais réglés. Situation anormale qu'il faut absolument changer.

Communication présentée au Congrès de l'Association dentaire de la province de Québec, à l'Estérel, Co. de Terrebonne, le 23 mai 1964.

*Chef du Service de chirurgie dentaire à l'hôpital Notre-Dame de Montréal.

L'Hôpital Notre-Dame de Montréal, hôpital d'avant-garde, conscient de cette situation, décidait, il y a quelques deux ans, d'y remédier en réorganisant son service de chirurgie dentaire.

Organisation d'un service de chirurgie dentaire dans un grand hôpital universitaire

L'Hôpital Notre-Dame possédait, depuis de nombreuses années, un service dentaire, mais ce service ne possédait aucun statut; ses facilités de travail étaient réduites au strict nécessaire et ses activités se résumaient à des traitements d'urgence d'ordre mineur.

Les dentistes prodiguant déjà du service à l'hôpital faisaient leur possible, mais ils travaillaient dans des conditions difficiles. Un projet de réorganisation fut donc soumis à la direction de l'hôpital le 23 mai 1961.

Le projet a été étudié et, au mois de juin 1961, l'Exécutif du bureau médical l'adoptait à l'unanimité avec quelques petites modifications. Ce projet renferme 15 pages, il est assez complet. Il se résume ainsi:

Statut du service

Le service de chirurgie dentaire de l'hôpital Notre-Dame est devenu un service dentaire hospitalier universitaire. Ceci veut dire que le service devra faire de l'enseignement: au niveau sous-gradué, au niveau post-scolaire, aux futures infirmières.

Le service de chirurgie dentaire de l'hôpital Notre-Dame est un service autonome au même titre que les quinze autres services de l'hôpital. Le chef du service a les mêmes obligations et les mêmes privilèges que tous les autres chefs de service de l'hôpital.

On voit comment la direction de l'hôpital considère son service de chirurgie dentaire. On voit aussi qu'elle veut lui laisser toute l'initiative et toutes les possibilités nécessaires à son développement et à son évolution normale.

Les membres du service

Les membres du service ont les mêmes obligations et les mêmes privilèges que les membres du personnel médical.

Il y a actuellement quatorze membres réguliers et six consultants.

Entraînement hospitalier

Au cours de l'automne dernier, un programme d'entraînement hospitalier pour les membres réguliers fut organisé.

Le programme a duré deux mois et tous les membres du service, anciens et nouveaux, y ont assisté assidûment. La direction de l'hôpital a accepté avec plaisir ce stage d'entraînement. Tous les autres services, dont le concours a été nécessaire, y ont contribué de très bonne grâce.

Sections

Le service est divisé en plusieurs sections: Chirurgie buccale, Prothèse maxillo-faciale, Orthodontie, Périodontie.

Le service dentaire espère organiser les équipes suivantes en collaboration avec le personnel médical d'autres services:

(a) équipes de réhabilitation post-chirurgicale des cas de lésions intéressant les maxillaires,

(b) équipes de traitement des cas de fissures palatines, équipes d'études et de traitement des affections temporo-mandibulaires.

Il compte aussi entreprendre des travaux de recherches lorsque le service aura atteint le rendement qu'il se propose. Pour le moment, il n'en est qu'à ses débuts. Il est encore au stade d'organisation: équipement, facilités de travail, personnel auxilliaire, procédures à établir, etc. Un service hospitalier ne

s'improvise ni en six mois, ni dans deux ans.

Actuellement, il y a à la clinique deux chirurgiens dentistes tous les matins de 9.00 heures à midi.

A mesure que l'instrumentation sera complétée — l'item budgétaire, comme c'est le cas pour tous les autres services, a son importance — les traitements seront organisés.

Il existe un service de garde pour le soir et les fins de semaine. Il faut ici rendre hommage particulièrement aux membres du service qui donnent gratuitement leur temps à l'hôpital, où ils traitent de 12 à 15 patients par matin.

Ils prodiguent leurs services gratuitement. La clientèle de l'hôpital se compose encore presqu'entièrement de cas d'indigence. Le service en est encore au stage où les soins dentaires aux indigents sont à la charge des individus dans la province de Québec.

Ce service est prêt à faire sa part de charité, mais il y a des limites compréhensibles à cette abnégation.

La présence ici ce matin d'un représentant du Ministère de la Santé constitue une excellente occasion pour soulever cette question. Il faudra bientôt soumettre au Ministère des demandes inévitables. Il faut espérer pour le bien de la cause que, par son entremise, elles seront bien accueillies.

Entr'autres demandes, il y aura celle de salaires nécessaires à la création de postes d'internes dentaires, comme cela existe au Montreal General et dans quantité d'hôpitaux américains.

Il serait malheureux que ces demandes soient refusées parce que cela rendrait encore plus difficile à atteindre le but considéré comme nécessaire, i.e. des traitements plus complets à l'hôpital pour toutes les classes de la population.

Il faut aussi penser aux problèmes vers lesquels l'évolution sociale se chargera de nous conduire.

De toute façon, un service dentaire dans un hôpital comme l'Hôpital Notre-Dame est un endroit tout désigné pour devenir un centre d'enseignement et de formation hospitalière pour le chirurgien dentiste.

L'Hôpital Notre-Dame possède un personnel médical hautement qualifié et ses rouages sont depuis longtemps rompus à l'enseignement universitaire.

Aussi, dès octobre prochain, le service dentaire sera prêt à recevoir les 50 élèves de quatrième année de la faculté de chirurgie dentaire.

Ces étudiants feront, selon un système de rotation, des stages dans le service de chirurgie dentaire de même que dans plusieurs services médicaux.

Ce sera évidemment une première expérience, mais il faut souhaiter qu'à la fin de la prochaine année académique, 50 nouveaux dentistes seront intéressés et prêts à faire du service hospitalier dans les villes respectives où ils iront exercer leur profession et cela au profit de la santé physique de la population de notre province qui, pour une fois, serait en avance sur les neuf autres.

En terminant, il convient de souligner que la direction de l'Hôpital Notre-Dame a reçu les dentistes avec enthousiasme, qu'elle a manifesté beaucoup de largesse de vue dans les buts qui lui ont été proposés et qu'elle a toujours fait preuve d'une grande collaboration.

Il faut retenir le nom du docteur J. R. Boutin et il convient de profiter de sa présence ici, ce matin, pour le remercier de l'intérêt tout particulier qu'il a manifesté surtout pour la cause de la chirurgie dentaire dans les hôpitaux et de la collaboration magnifique qu'il a toujours témoignée. D'ailleurs, il vient de nous dire lui même, sans équivoque, ce qu'il pense de la chirurgie dentaire comme profession et ce qu'il pense du rôle que nous devons jouer dans le bien-être et la santé publique.

Toutes les possibilités sont là, à nous de passer à l'action.

SUMMARY

Montreal's Notre-Dame Hospital reorganized its dental department two years

ago. Hospital authorities co-operated whole-heartedly and the dental department now enjoys the same status as all other medical departments of the hospital. Dental staff privileges and obligations are similar to those of the medical staff. The department is now considered a prototype for dental departments in other French-speaking Montreal hospitals. There are four sections — oral surgery, maxillo-facial prosthetics, orthodontics and periodontics. Expansion to other dental fields is a likely future possibility. Teams will shortly be organized to deal with post-surgical rehabilitation of jaw lesions, cleft palate and temporomandibular joint dysfunctions. Dental internships are to be established during the coming academic year. In October 1964, the department will begin to instruct undergraduate and graduate dental students in hospital dental procedures and may subsequently contribute to the training of dental auxiliary personnel.

3429 Drummond

Les implications de la loi d'assurance-hospitalisation sur les soins dentaires prodigués à l'hôpital

Patients whose physician recommends in-hospital dental care for medical reasons, patients requiring the extraction of more than seven teeth, and patients requiring general anaesthesia or oral surgery are eligible for in-hospital dental treatment under Quebec's Hospital Insurance Act.

par Napoléon Tremblay, M.D.,*
Montréal, P.Qué.

On se souvient que le plan d'assurance-hospitalisation de la province de Québec a débuté le 1er janvier 1961. A cette époque, chacun était inquiet de l'avenir de ce plan, qui, disait-on, avait été préparé avec précipitation. Une série de complications était à prévoir, qui, à la longue, pouvait mettre en danger notre système hospitalier. J'avoue qu'à ce moment, nous aussi, nous étions inquiets, mais étant donné que les hôpitaux eux-mêmes, depuis un certain temps, demandaient l'établissement de l'assurance-hospitalisation, que la population désirait un tel plan, que ce plan existait avec un succès inégal dans les autres provinces du Canada et que le nouveau gouvernement avait promis l'établissement d'un tel plan, il était difficile de remettre à plus tard sa réalisation. Il ne faut pas oublier que nous avions l'avantage de bénéficier de l'expérience des autres provinces pour la préparation de notre loi et de nos règlements. J'ai été l'un de ceux qui, au début, ont douté de la possibilité du succès de l'entreprise, mais aujourd'hui, en mai 1964, je puis affirmer que le plan d'As-

Communication présentée au Congrès annuel de l'Association dentaire de la province de Québec, le 23 mai 1964, à l'Estérel, Co. Terrebonne.

*Directeur du Ministère de la Santé de la Province de Québec, pour la région de Montréal, et assistant-directeur de l'assurance-hospitalisation.

surance-hospitalisation dans le Québec a été un succès et que, présentement, notre situation se compare avantageusement avec celle qui existe dans les autres provinces du Canada. D'après nos collègues fédéraux, même si nous avons pris le départ en retard, nous sommes maintenant parmi les tout premiers. Il est évident que pendant cette période du début, qui était une période de rodage, nous devions rencontrer certains problèmes. Quelques-uns étaient prévus, d'autres ne l'étaient pas. Ceux qui ne l'étaient pas, sont des problèmes qui ne pouvaient être perçus qu'en période d'opération et ce n'est qu'avec l'usage et l'expérience qu'ils pouvaient être corrigés.

Le grand avantage de la mise en application de la loi de l'Assurance-hospitalisation, au début de janvier 1961, est le bénéfice qu'en ont retiré plus de 750,000 personnes au cours de cette année-là.

Si c'était à recommencer, vous pouvez être assurés d'une chose, c'est que, pour ma part, je recommanderais aux autorités gouvernementales de procéder exactement de la même façon. Je considère maintenant que la période de rodage est en bonne partie terminée, du moins en ce qui concerne les services internes.

Tout cela a été rendu possible par la collaboration que nous avons obtenue des autorités hospitalières ainsi que de la profession médicale, et aussi de groupes qui sont très proches des médecins, particulièrement les dentistes qui nous ont fourni leur appui le plus entier. D'autre part, le service de l'Assurance-hospitalisation a, je crois, traité et traite les dentistes avec tous les égards qui conviennent à un corps professionnel, digne de la plus haute estime. Notre Service s'est efforcé jusqu'à maintenant de laisser aux autorités responsables de chaque hôpital la détermination des privilèges et des restrictions concernant les membres du service dentaire.

Vous me permettrez de vous rappeler certains articles des règlements concernant l'Assurance-hospitalisation. Ces articles s'adressent aux médecins et indirectement aux dentistes.

L'article 3, par exemple, dit: "Un résident a droit aux services assurés au cours de la période pendant laquelle ces services lui sont médicalement nécessaires."

Toute la loi de l'Assurance-hospitalisation est basée sur l'opinion du médecin. C'est lui le grand responsable, c'est lui le pivot autour duquel s'établit l'application de la loi.

Article 4: "Une personne prétendant avoir droit aux services assurés doit fournir à l'hôpital la preuve de ce droit." Etre résidant de la province depuis au moins trois mois.

Article 5—(a): "Aucun médecin n'a le droit d'admettre un patient dans un hôpital ou d'en ordonner l'admission à moins qu'il ne soit d'avis qu'il est médicalement nécessaire pour le patient d'être admis comme patient interne dans cet hôpital."

Et qu'est-ce qu'on entend par médicalement nécessaire dans les cas relevant de l'art dentaire ou du service dentaire d'un hôpital? C'est, par exemple, l'extraction d'un nombre de dents qui dépassent sept. C'est le cas où il s'agit d'une dent incluse, c'est le cas où l'anesthésie générale est indiquée, c'est aussi le cas où l'état général du patient est tel que la protection qu'il reçoit à l'hôpital est supérieure à celle qu'il recevrait dans un bureau de médecin ou de dentiste.

Par exemple, vous avez un enfant ou une personne souffrant d'hémophilie. Il est évident que, même s'il s'agit de l'extraction d'une seule dent, l'hospitalisation est justifiée et la présentation d'un compte des frais de séjour à l'hôpital sera alors honorée par le service de l'Assurance-hospitalisation. Il en serait de même pour une personne souffrant de nervosité excessive. Il peut y avoir de multiples raisons qui nécessitent l'hospitalisation d'une personne pour trouble dentaire. C'est au dentiste et au médecin de décider si les services dont le patient a besoin doivent être des services hospitaliers. S'il arrive qu'à première vue, le diagnostic ne nécessite pas l'hospitalisation, mais que la condition du patient est telle que le

médecin, avec le concours du dentiste, juge que le patient doit être hospitalisé, il faudra alors expliquer la raison pour laquelle le patient a été hospitalisé et le compte d'hospitalisation sera accepté, s'il est justifié. La justification est importante. Les fonctionnaires du service de l'Assurance-hospitalisation ne sont pas aptes à deviner le pourquoi de l'hospitalisation, mais il appartient au médecin responsable et au dentiste consultant ou traitant d'expliquer le pourquoi de l'hospitalisation.

Article 5—(b): "Dès que le médecin traitant est d'avis qu'une personne assurée sous ses soins n'a plus besoin de demeurer à l'hôpital pour des raisons médicales, il doit ordonner sa sortie immédiate."

Notre Service considère qu'une journée d'hospitalisation pour extraction dentaire est suffisante. Cette règle souffre des exceptions. Par exemple, s'il y a anesthésie générale, tout dépend du genre d'anesthésie et de la préparation requise, l'opinion du médecin sera respectée. Il peut arriver que nous croyons qu'il s'agisse d'une extraction banale et qu'en définitive ce soit une chose très compliquée, soit par l'anesthésie, par la condition du patient, ou par le travail qui se fait au niveau dentaire. Encore une fois, il faut expliquer et, généralement, vous n'aurez pas de difficultés à faire accepter ces séjours qui durent plus d'une journée.

Article 7: "Le Ministre peut, en tout temps, demander à l'hôpital d'obtenir du médecin traitant qu'il lui transmette un rapport écrit de l'état de santé de la personne assurée, faisant connaître les raisons et la nécessité des services assurés ou des autres traitements fournis pendant la totalité ou une partie du séjour à l'hôpital." Ce qui veut dire qu'il appartient au Ministre de la Santé de s'informer, de se renseigner, et à ses officiers, de voir à ce que la loi soit bien observée et que les personnes qui bénéficient des services assurés soient réellement dans le besoin d'en obtenir.

Article 8—(a): "Si, de l'avis du Ministre, un des services rendus à un patient n'est ou n'était pas médicalement nécessaire, le patient n'y a pas droit comme service assuré."

Article 8—(b): "Quand le ministre croit qu'il existe un doute sur la nécessité médicale d'un service assuré, il peut nommer un comité de révision médicale et l'autoriser à faire rapport sur le cas; sa décision doit, en ce cas, être conforme au rapport reçu."

En autant que la chose est possible, si l'un des membres du service dentaire d'un hôpital est appelé en consultation, auprès d'un patient hospitalisé, il devra faire le travail qu'il recommande concurremment avec les autres traitements médicaux, de façon à ne pas prolonger inutilement le séjour du patient à l'hôpital.

Notre division des normes hospitalières a laissé jusqu'à maintenant aux bureaux médicaux des hôpitaux beaucoup de latitude et aussi beaucoup de responsabilités. Nous avons voulu qu'ils disciplinent eux-mêmes leurs membres. Le service dentaire d'un hôpital doit aussi se discipliner et voir à ce que la qualité des soins donnés soit excellente, tout en visant à un coût minimum d'hospitalisation, ce qui est dans l'intérêt de chaque patient et du public en général.

Jusqu'à maintenant, je crois que votre profession, comme la profession médicale, s'est montrée digne de cette confiance et j'ai la conviction que vous continuerez dans le même sens, avec le même désir d'aider l'humanité souffrante, à guérir ses maux et à se conserver en bonne santé.

Summary

Quebec's Hospital Insurance Act makes allowance for in-hospital dental treatment of in-patients. Entitlement to compensation for such dental treatment is determined by the hospital and the attending physician. Eligible are patients whose physician recommends in-hospital dental care for medical reasons, patients requiring the extraction of more than seven teeth, and patients requiring general anaesthesia or oral surgery. According to

the Act one day of hospitalization is generally considered adequate for tooth extraction. This period may, however, be extended according to circumstances. Application of the provisions of the Act is left entirely to the discretion of the hospital in consultation with the attending physician and dentist.

1570 rue St-Hubert

L'organisation d'un service dentaire dans un centre régional

par Charles Goulet, D.D.S.,*

Sherbrooke, P.Qué.

The dental department in a regional Quebec hospital is mainly used for multiple extractions under general anaesthesia and for patients who cannot be treated in private practices for reasons of health.

Le service à l'Hôtel-Dieu de Sherbrooke a été inauguré à l'automne 1957, et depuis, une douzaine de dentistes en font partie. Cette organisation est bien rodée; elle rend de très nombreux services à ceux qui en font partie et aux patients qui y sont traités.

Après entente entre l'Association dentaire locale et le Comité administratif de l'Hôpital, une convention a été préparée contenant les règlements du service et en décrivant le fonctionnement.

Voici les grandes structures de l'organisation:

Communication présentée au congrès annuel de l'Association dentaire de la Province de Québec, le 23 mai 1964 à l'Estérel, Co. de Terrebonne.
*Membre du service dentaire de l'Hôtel-Dieu de Sherbrooke.

Les règlements du service dentaire

(a) Acceptation des candidats: tout dentiste désirant faire partie du service doit présenter une demande écrite au comité administratif de l'Hôtel-Dieu qui fait parvenir cette application au bureau médical et au chef de service dentaire pour approbation.

(b) Comité des créances: le comité des créances du service dentaire vérifie l'authenticité des qualifications du postulant ainsi que sa réputation professionnelle et son expérience. Ses recommendations sont soumises au bureau médical pour approbation.

(c) Administration du service: le service dentaire est responsable auprès du service de chirurgie de l'hôpital et, pour en assurer le bon fonctionnement, un comité exécutif de trois membres actifs est élu par les membres du service. Le chef du service dentaire, qui est président de l'exécutif, est responsable auprès du service de chirurgie de la qualité des soins donnés aux patients. Les trois membres de l'exécutif sont automatiquement en charge du Comité des Créances.

Devoirs des membres du service dentaire

(a) Pour chaque patient hospitalisé sous ses soins, chaque membre rédige le dossier du patient, — histoire de cas, résultat de l'examen dentaire et buccal, diagnostic provisoire de la maladie, le traitement envisagé et une description de tout traitement ou opération exécuté sur le patient.

(b) Tout membre actif doit se présenter à toute réunion médicale de l'hôpital dans 48 heures d'avis et à être prêt à présenter l'aspect dentaire de tout cas qu'il a traité ou opéré et de discuter du cas pour le bénéfice de l'assemblée.

(c) L'admission d'un patient se fera suivant les règlements donnés par l'administration de l'hôpital.

(d) Une clinique de charité publique est organisée et les membres actifs en assurent le service à tour de rôle.

Fonctionnement du service

(a) Admission des patients: il est bien à noter qu'il faut distinguer entre cas externes et cas hospitalisés.

Cas externe.—par cas externe, nous entendons un patient qui sera reçu à la salle d'urgence pour extraction dentaire. Le patient, après examen préalable au cabinet du dentiste, se présente ordinairement le matin vers sept heures pour opération à 8 heures. Le patient devra avoir une ordonnance du dentiste qu'il remet en arrivant. L'extraction faite, ce patient peut occuper un lit à la salle d'urgence et y demeurer quelques heures. L'hôpital a aménagé pour ces cas, dans son département d'urgence, une salle d'opération qui est à la disposition des dentistes, cinq matins par semaine, avec anesthésiste de service. Les dentistes vont sur rendez-vous faire les cas.

Les dents extraites sont envoyées au laboratoire de pathologie avec la feuille du dossier sur laquelle sont inscrites les raisons de l'extraction. Ceci permet la répression des extractions à outrance par un contrôle du dossier.

Cas hospitalisés.—Par cas hospitalisés, nous entendons un cas où le dentiste et le médecin responsable, soit à cause de la gravité du cas ou encore de l'état de santé du patient, jugent que l'hospitalisation est nécessaire. Dans ce cas, le patient est admis à l'hôpital comme tout autre malade.

Clinique dentaire

Cinq jours par semaine, de 8 heures à 9 heures a.m., des dentistes vont à tour de rôle, et bénévolement, traiter des indigents ne pouvant assumer le coût normal des soins dentaires. Les patients sont référés à la clinique par un dentiste, un médecin, un curé, ami, parent.

Lorsque l'enquête prouve l'indigence, les patients sont conviés par groupes, généralement une fois la semaine; on fait l'examen et on ouvre un dossier.

Le chef de clinique distribue les patients aux divers dentistes membres de la clinique. Une garde-malade est préposée à l'organisation générale de la clinique.

L'hôpital assure les services d'une assistante aux dentistes tous les matins de clinique.

Jusqu'à date, les travaux se limitent à la dentisterie opératoire et la chirurgie. Lorsque des cas de prothèse se présentent ils sont référés ailleurs.

Service d'urgence

Toutes les fins de semaine, à tour de rôle, les dentistes membres de la clinique acceptent de demeurer disponibles pour répondre aux cas d'urgence qui se présentent à l'hôpital.

Summary

Sherbrooke, a city of 60,000 population, is the regional centre of the Eastern Townships of southern Quebec. Its Hôtel-Dieu Hospital has a dental department which serves the needs of the public and of the dentists of this region. The dental

department is mainly used for multiple extractions under general anaesthesia and for treatment of patients whose health precludes treatment in a private practitioner's office. The services provided are mainly oral surgery and operative dentistry. An emergency dental service is provided as are also services for inmates.

Eligibility for staff membership is contingent on approval by a credentials committee and compliance with the general regulations of the hospital.

125 Frontenac

Tetracycline discoloration of teeth: review and case reports

D. W. Lewis, D.D.S., D.D.P.H., Kingston, Ontario*

Tooth discoloration in eight children, possibly caused by tetracycline therapy for infancy and childhood infections, is described.

■

L'auteur rapporte la coloration des dents de huit enfants possiblement produite par une thérapeutique à base de tétracycline pour des infections subies au cours de l'enfance ou de l'adolescence.

Tetracycline antibiotics are widely used because of their therapeutic effectiveness and relatively low toxicity. They have recently gained particular dental interest because of their reported association with permanent discoloration of teeth when administered during the period of active tooth formation.

Pharmacology. — Tetracyclines, including tetracycline itself (Achromycin, Tetracyn), chlortetracycline (Aureomycin), oxytetracycline (Terramycin), and demethylchlortetracycline (Declomycin), are a group of chemically-related, broad-spectrum antibiotics. Tetracyclines, penicillin and streptomycin are the three commonest antibiotics in general use today.[1] The exact mode of action of tetracyclines is not clear; however, it is known that in ordinary dosages they are bacteriostatic rather than bactericidal and that they are effective against many infections, particularly those which are penicillin-resistant. Most often the drug is administered orally, but parenteral dosage forms are also available.

Most ingested tetracycline is rapidly absorbed from the gastro-intestinal tract and is widely distributed in tissues. The drug crosses the placental barrier and so is found in foetal blood. Tetracycline also is present in the cerebro-spinal fluid and in the saliva. Excretion occurs by way of the urine, bile, and faeces.

Tetracyclines have an affinity for polyvalent cations such as calcium so that tetracycline-calcium complexes can occur. Under the influence of strong light the tetracyclines are unstable and darken in colour.[2] Tetracyclines show golden-yellow fluorescence when exposed to ultraviolet light. This property is used when studying the distribution of tetracycline within the body.

*Director of Dental Division, Department of Health, Kingston.

The toxicity of tetracyclines in ordinary dosages is quite low. Nausea and vomiting may result from direct irritation. Occasionally skin rashes and mucous membrane lesions occur. Photosensitivity of the skin, resulting in an exaggerated response to sunlight, may be found particularly with demethylchlortetracycline.[3] More commonly side effects are related to the wide bacterial activity of the tetracyclines. They result from disturbance of the normal flora of the alimentary canal so that resistant pathogenic, often yeast-like, organisms supervene. Superinfections, such as staphyloccocal enteritis, with fatal consequences are rare.

In those who are undernourished or those with renal disease, long-term use of tetracyclines may result in liver damage, weight loss, and increased urinary loss of sodium, nitrogen, and riboflavine.[4-7]

Increased intracranial pressure, characterized by a bulging anterior fontanel, has been reported as an effect of tetracycline administration to infants.[8,9] The significance, if any, of this complication is not as yet known.

Body Distribution — Two early reviews[10,11] concluded that tetracycline was widely distributed in the body and had no affinity for any special tissue other than a tendency to accumulate in the organs through which it is excreted — liver, kidney and intestine.

However Torsten (1956)[12] showed that tetracycline was incorporated in the bones of young mice, and Milch et al[13] using various animals showed that parenteral administration of tetracycline resulted in diffuse yellow fluorescence, indicative of the presence of tetracycline, in all tissues but brain. This fluorescence disappeared from tissues except bone after six hours, and microscopically the remaining fluorescence was limited to areas of new bone formation. Tetracycline remained in bone for a considerable time, only being removed during skeletal remodelling. These findings, that tetracycline is deposited in newly forming bone where its fluorescence permanently labels that bony area until skeletal remodelling occurs, have been corroborated in numerous subsequent studies. Hilton[14] observed that bones of patients who received tetracyclines show yellow pigmentation when seen at postmortem examination. Such bones fluoresced under ultraviolet light, but after exposure to light the yellow pigmentation darkened to brown and the yellow fluorescence no longer occurred.

Further information on the occurrence of tetracycline in bone has been provided by Anderson et al.[15] These investigators found that the bacteriostatic effect of bone samples from rabbits who had received varying dosages of tetracycline intramuscularly was lost within 96 hours after the last injection, but that the fluorescence of the bone persisted for months. They concluded that the fluorescent property of tetracycline is independent of its antibacterial activity. Recently these findings were confirmed by Boyne and Kruger[16] who used alveolar bone samples from the healing extraction sockets of dogs. In addition to intramuscular administration of tetracycline resulting in a 96-hour bacterial inhibiting effect, they planted tetracycline cones in the extraction sockets and found that antibacterial activity persisted for an average of six days; they suggested that this may be the reason for the reduction in alveolar osteitis or "dry socket" when tetracycline cones are used at extraction sites postoperatively.

Tetracycline labelling of newly forming bone using fluorescence microscopy can be used as an indicator of rates of bone growth[17,18] similar to the use of radiocalcium. Boyne,[19] along with Kruger,[20] used tetracycline fluorescence to study alveolar bone repair in dogs following mandibular ridge resection and extractions.

Deposition of tetracyclines such as occurs in newly forming bone, is not limited to normal tissue. Rall et al,[21] coincident with the early observations on bone localization of tetracycline in animals, further noted that in tumours in mice and humans a bright yellow fluor-

escence persisted in most types of tumour tissue when tetracycline had been given previously. The authors suggested that such drugs, due to their selective uptake, could serve as important tools in the therapy, histological investigation, and diagnosis of cancer. Other investigators have corroborated these observations concerning the affinity of tetracycline for certain tumour tissue. Sandlow et al[22] reported recently on a simplified technique for detection of gastric malignancy using tetracycline fluorescence and gastric washings. Their results confirmed those of at least two similar studies by earlier workers. Tetracycline is also incorporated into some tissues undergoing regeneration, necrosis, and inflammation as a result of artificially induced tissue damage in animals.[23]

Growth. — Waisman and Boldt (1957)[24] found that small amounts of tetracyclines added to a tryptophane deficient diet in rats gave improved growth, particularly in males, up to the level but not exceeding that achieved when tryptophane was present in the diet. This growth stimulating effect is probably due to alterations in normal gut flora favouring amino acid metabolism. However, other investigators have shown that tetracyclines may interfere with skeletal mineralization during embryogenisis in certain animals, and linear bone growth in premature infants.

Bevelander et al showed that the exposure to tetracycline of developing chick embryos[25] and the larval sand dollar embryo[26] can result in the inhibition of skeletal formation with the deposition of fluorescent material in the hypomineralized areas. These investigators have further shown that feeding tetracycline to laying hens results in the incorporation and retention of the drug in the skeletal system of the developing chick embryo,[27] and that injection of tetracycline into rats at various periods in gestation results in embryos of reduced size and weight.[28] Under the aforementioned experimental conditions it appears that maternal transmission of tetracycline to some developing embryonic skeletal systems is possible, and that at appropriate levels of drug administration skeletal inhibition may occur.

In studies on newborn premature infants Cohlan et al[29] demonstrated that oral tetracyclines in the amount of 100 mg./Kg./day for 10 days can cause a decrease of 40 per cent in linear bone growth (fibula) when compared with normal growth rates. This inhibition is reversible insofar as the growth rate returned to normal upon cessation of drug therapy.

Mechanism of Attachment. — The mechanism whereby tetracyline becomes incorporated in mineralizing structures, tumours, and pathologically changed tissues is not clearly understood. It is known that tetracycline can complex with calcium at physiological pH ranges, and one theory suggests that the deposited material is a tetracycline calcium orthophosphate complex possibly related to the inorganic surface crystals of bone.[13, 23] Another theory postulates that tetracycline is attached to the organic bone matrix and tumour tissue by certain peptides.[13, 23]

Tetracyclines and teeth

In view of the relationship between tetracyclines and bone, it is not surprising that tetracyclines administered during the developmental periods of teeth may be deposited within forming teeth where subsequent discoloration, probably of a permanent nature due to the greater biological stability of teeth relative to bone, may occur.

Animal Studies. — Zipkin et al[30] in a study using rats to demonstrate the positive caries inhibitory effect of tetracyclines given during gestation, lactation, and the preweaning period, observed that the incisor but not molar teeth of the mother, and both incisor and molar teeth of the offspring showed marked yellow fluorescence under ultraviolet light. Owen[31]

has shown that both the enamel and dentine of dogs' teeth fluoresced following tetracycline administration. Using rats Gron and Johannessen [32] demonstrated, at the higher of two dosage levels used, two distinct sets of two fluorescent lines in the dentine corresponding to the four oxytetracycline injections given. They also reported that those bands which fluoresced were hypomineralized. Bevelander et al[33] using microscopic fluorescence showed in the dentine of rat teeth five distinct bands which represent each injection of tetracycline administered. They also observed fluorescence in the alveolar bone and the enamel (much less pronounced), plus inhibition of calcification at the fluorescent sites in both enamel and dentine. Boyne and Miller [34] reported on the incorporation of tetracycline in the developing dentine of dog canine teeth and the surrounding alveolar bone. At the dosage level used, they were unable to detect any inhibition of root development or calcification over normal control teeth.

Human Studies. — Probably the first reported relationship between human tooth discolorations and tetracyclines was made by Shwachman and Schuster (1956).[8] In a group of over 300 infants and children suffering from cystic fibrosis of the pancreas who were treated with chlortetracycline and oxytetracycline for one year or more, they revealed that approximately 5 per cent showed discoloration of the deciduous teeth. Later Shwachman et al [35] reviewed 50 children with cystic fibrosis who had been treated with broad-spectrum antibiotics (mainly tetracyclines) for at least eight years. They found that about 40 children (80 per cent) had darkly stained teeth.

Zegarelli et al (1960)[36] and (1961)[37] revealed that in a group of 52 cystic fibrosis patients ranging in age from nine months to 16 years, 38 had grey-black or brown discoloration of deciduous and/or permanent teeth. They suggested that prolonged antibiotic (often tetracycline) therapy, so necessary to control the chronic pulmonary disease characteristic of cystic fibrosis of the pancreas, might cause the discoloration. In a further study of 41 children with cystic fibrosis aged two to 15 years and a control group of 24 children being treated for other disorders, Zegarelli et el [38] used a shade guide to determine individual tooth colours for each child. In the cystic fibrosis group, 185 out of 813 teeth were very dark; in the control group 36 out of 494 teeth were so classified. They concluded that the teeth of cystic fibrosis patients were often intensely discoloured not by local traumatic factors but because of the disease itself, the therapeutic agents used in treatment, or from the interaction of both of these factors. Upon further investigation these authors[39] concluded that there is no striking relationship between tooth discoloration and cystic fibrosis disease severity.

DeVeber[3] reports the case of a 10-year-old girl who received one of the tetracyclines for a six-month period. She subsequently developed discoloured teeth described as being bluish-grey in the incisal one-third with a brownish deposit also present. Upon cessation of the drug these stains disappeared after six weeks and the teeth then appeared normal. Probably these bizarre stains were of an external, superficial nature.

Using fluorescence microscopy Gron and Johannessen[32] found fluorescent lines present in the dentine of a supernumerary tooth and various deciduous teeth from an 11-year-old girl who had received tetracyclines in unknown amounts starting at about eight months of age. No information regarding macroscopic discoloration of these teeth or of those still present in the mouth was given.

In the follow-up of ill and premature newborn babies, yellow-brown discoloration of the teeth has been observed by Davies et al.[40] Tetracyclines were suspected as the cause since these drugs had been given to each of the affected children in the early neonatal period. In two such children the teeth showed a yellow fluorescence under ultraviolet light.

Lower incisor tooth buds and bone removed at autopsy from an 11-day-old infant with a history of five days treatment with tetracycline also showed bright yellow fluorescence.

Wallman and Hilton[41] reported that of 50 babies given tetracycline (27 for various infections and 23 prophylactically) early in life, 46 later showed pigmented teeth. They stated that the areas stained are related to gestational age, and that severity of stain is probably related to total dose relative to body weight rather than duration of treatment with tetracycline. Generally, younger children had yellow teeth and older children brown teeth. This observation suggested that the change to brown discoloration is due to an oxidation product of tetracycline, the formation of which is hastened by exposure to light. They report some pigmentation in enamel, but much more was evident in dentine.

Grey-brown discoloration in seven and yellow discoloration in two children who had received tetracycline for varying reasons was reported by Weyman and Porteous.[42] They noted especially with the grey-brown group that only those teeth which were undergoing active formation at the time of tetracycline administration were stained, while those not actively forming at this time, or already formed, were not.

Harcourt et al[43] studied 17 teeth obtained from five young patients who had been treated extensively with tetracycline. Macroscopically, some deciduous molars showed hypoplasia and attrition of the enamel. In some areas the crowns were bright yellow in colour. Microscopically, faint yellow lines and golden-yellow bands using ultraviolet light were observed in the dentine of both deciduous and permanent teeth. No evidence of enamel staining due to tetracycline was found.

Pindborg[44] reports the case of a 7-year-old girl who because of cystic fibrosis received 57 Gm. of tetracycline from eight days to 4 years 6 months of age. All of her teeth were stained grey, but the colour was more prominent in the deciduous teeth.

Using 46 children aged 4 to 8 years with a history of premature birth and oxytetracycline administration every 12 hours for the first 120 hours of life, Zegarelli et al[45] demonstrated that 70 per cent of these children exhibited two or more darker than normal teeth. The number of children with dark teeth and the number of erupted teeth classified as dark, using a shade guide were much lower in the control group.

Recently Bullen[46] reported that six of 1,281 British Columbia school children aged six and seven years had lemon-yellow coloured teeth. Two cases occurred in deciduous teeth only and four in permanent teeth only. Medical histories revealed that five of these children had received tetracyclines for various infections in early infancy, and one for prophylactic reasons because of premature birth. No grey-brown tooth discoloration was observed.

There are at least four references relating to placental transfer of tetracycline from the mother to the foetus with subsequent tooth discoloration. Rendle-Short,[47] and Harcourt et al[43] each report on a single case of tooth discoloration observed in two infants whose mothers had received tetracycline during pregnancy. Douglas[48] observed eight infants with brownish-yellow teeth apparently due to the long-term administration of tetracyclines to the six mothers involved. Kutscher et al[49] report in more detail the case of a girl three years 10 months of age with discoloration of all her deciduous teeth. These teeth fluoresced in the manner characteristic of tetracyclines under ultraviolet light. The child had received no tetracycline antibiotics but her mother received 20.75 Gm. of tetracycline from the twenty-eighth to the thirty-fifth week of gestation.

Case reports

Method. — Eleven children were selected from a larger group of children all hav-

TABLE 1 Medical and dental factors in eight Kingston, Ontario, children with intrinsic tooth discolorations.

Case	Sex	Age	Medical condition	Tetracycline history*	Teeth present	Extent of discoloration				Colour and shade	Yellow fluorescence	
						Severe	Moderate	Mild	Unaffected		Decid.	Perm.
1	F	6	Upper respiratory infections from birth to 23 months	Unconfirmed doses at home. In hospital 1.0 Gm. at 10 months and 2.5 Gm. at 19 months	edcba|abcde / edcba|abcde	edba|abde / edba|abde	c|c / c|c	—	|6 / uncertain	Grey-brown +82B	Yes	No
2	M	6	Meningitis at 3 months Otitis media at 4 months	2.5 Gm. in hospital 1.0 Gm. in hospital	6edcba|abcde6 / 6edc21|12cde6	6cba|abc6 / 6ec|ce6	ed|de / d|d	1|1	2|2	Brown +82J	Yes	Yes
3	M	8	Tracheitis at 6 months	3.4 Gm. in hospital	6edc21|12cde6 / 6ed21|12de6	—	621|126	621|126	edc|cde / ed|de	Light brown 81P	No	No
4	F	8	Upper respiratory infections 12 and 30 months	Early—uncertain 1.1 Gm. in hospital at 30 months	6edc21|12cde6 / 6edc21|12cde6	—	21|1 / c21|12c	6edc|cde6	|2 / 6ed|de6	Light brown 81P	Yes	No
5	M	5	Chronic ear and throat infections under 1 year	Unconfirmed doses tetracycline and oxytetracycline	edcba|abcde / edcba|abcde	edcba|abcde / edcba|abcde	—	—	—	Grey-brown +82B	Yes	—
6	M	8	Upper respiratory ear infections from 7 to 22 months of age	22.2 Gm. in hospital between 7th and 22nd month	6edcba|abcde6 / 6edcb1|1cde6	6|	6|6 / 1|16	—	edcba|abcde / edcb|cde	Brown 81P	Yes	Yes
7	M	9	Ear and throat infections under 1 year Tonsillitis at 18 months	Uncertain 4.0 Gm. in hospital	6edc21|12cde6 / 6edc21|12c456	—	21|12 / 621|12	6e|cde6 / c|c6	dc| / ed|45	Brown 82J	Yes	Yes
8	F	6	Chronic respiratory infections from about 1 to 5 years of age	Unconfirmed oxytetracycline administered from 1 to 5 years	6edcba|abcde6 / 6edcb1|1bcde6	—	| / 1|1	edc|cde / edcb|bcde	6ba|ab6 / 6|6	Light brown 81P	Yes	Yes

*In no case is the total home dosage certain.

ing diffuse brownish or greyish-brown intrinsic discolouration of deciduous and/or permanent teeth. The recordings of tooth stains for the group were made in conjunction with the annual dental health survey by the same examiner of some 8,000 elementary school children in Kingston, Ontario.

Initially the parents of each of the 11 children were contacted in order to discover the aetiology of the tooth discolorations. Two of the children with brown discoloration had received exchange transfusions shortly after birth due to erythroblastosis foetalis. Another child's history revealed a familial tendency to brown discolouration of the teeth. These three children were excluded from further study because the aetiological factor was partially evident. Medical histories of the remaining eight children were derived from parents, school health cards, and hospital records for each child. Unfortunately, little information was available from the records of the family physician at the time the teeth in question were forming because six of the seven children who had regular medical care had the same paediatrician who had recently retired.

The eight children were re-examined in more detail. Recordings were made of the teeth present, the teeth discoloured, and the area per tooth discoloured. The shade of two or more of the darkest teeth was determined using a Biotone shade guide modified by the addition of two darker shades (82 Bioform and 82 Justi).

Each patient's teeth were classified as severe, moderate, mild or unaffected according to criteria established by Wallman and Hilton.[41] In this report pigmentation was considered severe if it matched or was darker than 82B or 82J. Most of the moderately discoloured teeth were shade 81P. In addition each child's teeth were examined in a darkened room using a long-wave ultraviolet lamp and protective glasses. The type of fluorescence emitted by different teeth was recorded. Finally, each child's teeth were photographed with the shade guide incorporated into the resultant colour transparency.

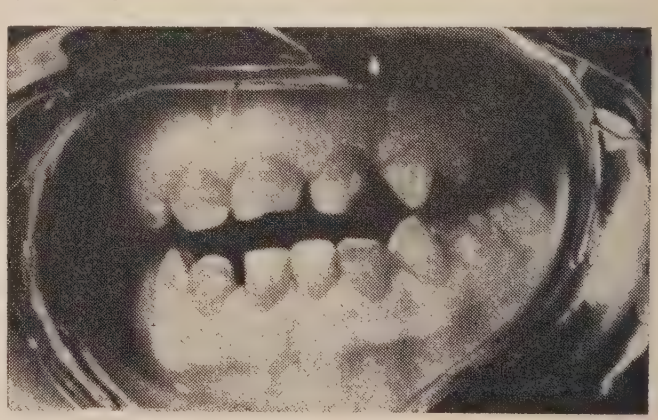
An exfoliated lower deciduous central incisor from one of the children under study was obtained and photographed under ultraviolet light.

Results. — Results of the dental examinations and significant factors in the medical history of each child are listed in Table 1. None of the histories revealed obvious neonatal jaundice. Nor did any of the eight children have a history indicating hereditary discolouration of teeth to be possible.

Each child had been ill, often with upper respiratory infections, during the period that discoloured teeth, or areas of discoloured teeth, were forming. All eight children had received tetracyclines during infancy and early childhood. However, in view of the impossibility of obtaining complete information on the tetracycline history of each child, specific correlations regarding the discoloured teeth observed clinically and the time and amount of the drug administered cannot be made. Nevertheless, the following general observations of a possible tetracycline-tooth discolouration relationship were made:

Case 1. — All deciduous teeth discoloured. Unconfirmed tetracyclines given at home in first year of life, 1.0 Gm. tetracycline given at 10 months of age (Figure 1).

FIGURE 1 Teeth of a six-year-old girl with severe grey-brown discolouration of all deciduous teeth (Case 1).



Case 2. — All deciduous teeth and first permanent molars discoloured. At least 3.5 Gm. tetracycline given up to five months of age.

Case 3. — All permanent central and lateral incisors and first molars discoloured, no deciduous tooth discoloration. At least 3.4 Gm. tetracycline given at about six months of age.

Case 4. — Some permanent and deciduous teeth discoloured. Early drug history uncertain; 1.1 Gm. tetracycline given at 30 months of age.

Case 5. — All deciduous teeth discoloured. Unconfirmed tetracyclines given during first year of life.

Case 6. — All erupted permanent teeth but no deciduous teeth discoloured. At least 22.2 Gm. tetracycline given from seven months to 22 months of age.

Case 7. — Some deciduous and permanent teeth discoloured. Drug therapy under 1 year age uncertain. At 10 months of age given 4.0 Gm. tetracycline.

Case 8. — Some deciduous and permanent teeth discoloured. Unconfirmed oxytetracycline given periodically from about 1 year to 5 years of age.

In 7 out of 8 children the discoloured teeth showed varying degrees of yellow fluorescence under ultraviolet light. Often the yellow fluorescence was limited to the cervical areas of discoloured teeth even though other areas of the crown were pigmented quite a dark brown.

The exfoliated deciduous lower central incisor obtained from one child (case 1) showed in the incisal one-half the greyish colour and in the gingival one-half of the crown the brown colour which had been observed clinically. A small portion of the root which remained attached to the crown when viewed macroscopically in ordinary light showed deep yellow pigmentation, and this root area under ultraviolet light fluoresced a bright golden-yellow colour (Figure 2). The stained areas on the crown showed no such fluorescence.

The mothers of four children (cases 1, 4, 5, 8) stated that their children's teeth after eruption got progressively darker. These statements cannot be confirmed.

FIGURE 2 Photograph under ultraviolet light showing bright golden-yellow fluorescence of root fragment (r.) of an exfoliated tooth from case 1. The crown of this tooth and that of a normally coloured control tooth (l.) fluoresce normally.

Discussion.—These children with tooth discoloration had varying medical histories. None of the children was affected with cystic fibrosis. Only one child out of eight was premature. Therefore prematurity or cystic fibrosis in association with tetracycline therapy does not appear to be necessary to produce tooth discoloration. The common factor appears to be the treatment of infections in infancy and early childhood with a tetracycline antibiotic. Subsequent discoloration of forming teeth and the yellow fluorescence of these discoloured teeth under ultraviolet light indicates that tetracycline has been deposited within the tooth structure. Normally coloured teeth have a blue-white autofluorescence under ultraviolet light. Unfortunately, information concerning the exact amounts and duration of administration of tetracyclines prescribed for home use was not available. However, precise information regarding these factors during hospitalization was obtained. Within these limits it was possible to observe a positive correlation between the time of administration of tetracycline and the discoloration of teeth forming at this time. For example, three children (cases 1, 2, 5) who apparently had tetracyclines

early in infancy, showed severe or moderate staining of some part of all deciduous teeth. Two children (cases 3, 6), whose first known tetracycline was administered from six to seven months of age, showed some permanent tooth discoloration but no obvious discoloration of the deciduous teeth, although the second deciduous molars and possibly the deciduous cuspid crowns were not fully formed by this time. These observations are similar to those reported by Weyman and Porteous[42] who studied tooth discoloration in nine children with varying medical conditions for which tetracyclines were administered.

The observation by four of the mothers involved in the present study, that their children's teeth have darkened in colour since eruption, seems plausible. Similar observations were reported by Wallman and Hilton,[41] and Weyman and Porteous[42] on teeth, and by Hilton[14] on bone. As observed by these investigators, teeth and bone which were pigmented yellow, probably due to tetracycline deposition, fluoresced yellow under ultraviolet light. But on exposure to light and in older individuals teeth and bone which were darker (brown) in colour, probably due to oxidation of the tetracycline, did not fluoresce yellow. This may account for the present observations on an exfoliated tooth where the brown-stained clinical portion of the crown which was freely exposed to light in the mouth did not fluoresce, but a portion of root immediately adjacent to this brown area, not directly exposed to light, was stained yellow and fluoresced a golden-yellow colour under ultraviolet light. Also the clinical observation that discoloured teeth often only showed yellow fluorescence at the cervical areas may be attributable to a decreasing tendency for deposited tetracyclines at these more sheltered cervical tooth areas, especially just under the gingiva, to oxidize and darken, thereby maintaining the property of yellow fluorescence for a longer period.

Presumably the disfiguring discoloration, which occurred mainly in deciduous teeth of children cited in this report, could also occur in the permanent teeth of patients other than those on long-term tetracycline therapy for cystic fibrosis. In order to gain further knowledge with regard to the tetracycline-tooth discoloration relationship, future studies should be carried out on at least three levels. Firstly, clinical investigations are necessary in which both the prenatal and postnatal dosage levels, type of tetracycline used, and the duration of administration of tetracycline necessary to result in tooth discoloration, are determined. Secondly, histological and histochemical investigations on teeth discoloured by tetracyclines are required in order to resolve the problems regarding the deposition of tetracycline in both enamel and dentine or in dentine alone, and the mechanism of attachment of tetracycline to the organic or inorganic matter of teeth. Thirdly, studies of an epidemiological nature on large groups of children in the population are necessary in order to establish the seriousness of the aesthetic problem as a factor in dental public health.

Summary and conclusion

The pharmacology, metabolism and distribution within the body of tetracyclines are reviewed. The relationship of tetracyclines to growth is outlined. Deposition of tetracyclines within forming teeth is reviewed by reference to animal and human studies.

Tooth discoloration in eight children, possibly caused by tetracycline therapy for infancy and childhood infections, is described. Further clinical, histological, and epidemiological studies are needed to add to present knowledge of the relationship between tetracyclines and teeth.

In view of possible permanent disfigurement of the teeth when tetracyclines are acquired during the tooth-formative period, caution must be used in prescribing these antibiotics during the latter half of pregnancy, infancy and early childhood.

Résumé

Cet article passe en revue la pharmacologie, le métabolisme et la localisation de la tétracycline dans l'organisme; il souligne les relations de la tétracycline avec la croissance; il fait une revue, grâce à des recherches entreprises chez des humains et chez des animaux, des dépôts de la tétracycline dans les dents en formation.

L'auteur rapporte la coloration des dents de huit enfants possiblement produite par une thérapeutique à base de tétracycline pour des infections subies au cours de l'enfance ou de l'adolescence. Des recherches plus approfondies en clinique, en histologie et en épidémiologie sont nécessaires pour établir les rapports qui existent entre l'absorption de tétracycline et la coloration des dents.

Il faut donc, pour éviter que les dents, à leur stage de formation, se colorent à la suite de thérapie à la tétracycline, être prudent quand il s'agit de prescrire cet antibiotique à la fin de la grossesse, durant l'enfance et durant l'adolescence.

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93 King Street West

Relationships between gingivitis and other dental conditions

F. McCombie, L.D.S., R.C.S., (Eng.), D.D.P.H. and D. Stothard,† B.A., Victoria, British Columbia*

Dental examination of 1,501 Metropolitan Vancouver school children revealed positive relationships between poor oral hygiene and gingivitis, and between malocclusion and gingivitis. Children with more professional dental care had less gingivitis.

▪

Les statistiques provenant de l'examen dentaire de 1,501 écoliers du Grand Vancouver révèlent un rapport positif entre la mauvaise hygiène buccale et la gingivite, et entre les malocclusions et la gingivite. Il y a une relation évidente entre la gingivite et l'importance apportée aux soins dentaires.

This study is an attempt to demonstrate the already-established relationship between gingivitis and oral hygiene,[1,2] to show whether a relationship exists between gingivitis and malocclusion,[3,4] and to consider the hypothesis that gingivitis is more prevalent in the presence of carious teeth than in mouths without carious lesions.[4-6]

The data utilized for the purposes of this study were obtained from a dental health survey carried out in the spring of 1962 among odd-aged children from 7 to 15 years in the schools of the Greater Vancouver region of British Columbia.[7] A total of 1,501 children were dentally examined, of which 300 were seven years of age, 284 age nine, 337 age 11, 262 age 13, and 318 age 15 years. A series of such surveys was carried out throughout British Columbia during the years 1958-1960 and a second series is being carried out

*Director, Division of Preventive Dentistry, and †Research officer, British Columbia Health Branch.

TABLE 1 Number of Vancouver children 7 - 15 years of age by gingival status and oral hygiene.

Gingivitis	Good oral hygiene		Poor oral hygiene		Total	
	No.	%	No.	%	No.	%
Present*	111	11.5	160	29.7	271	18.1
Absent†	852	88.5	378	70.3	1,230	81.9
Total	963	100.0	538	100.0	1,501	100.0

*Gingivitis present in the papillae of the lower incisors.
†Gingivitis not present in the papillae of the lower incisors.

during the years 1961-1965. The prime purpose of these surveys is to evaluate and compare the dental health status of the children throughout British Columbia. The method of selection of the sample, the subsequent examination technique and the description of the criteria for defining dental health indices are all as described in a methodology report prepared by the Division of Preventive Dentistry of the Health Branch of British Columbia.[8]

Gingivitis

For the purposes of these routine British Columbia dental health surveys the criteria utilized for defining the presence of gingivitis are as follows, the examining dentist having been instructed to check in each item the description most applicable to two or more of the three papillae of the lower incisors:

(a) The contour is: (1) normal, (2) hypertrophied, (3) atrophied.

(b) The surfaces after drying appear: (1) pebbled, (2) smooth.

(c) The predominant colour is: (1) pink, (2) fiery red, (3) bluish gray.

(d) Is there any free bleeding from the margins of these papillae (1) no, (2) yes.

If for any of the criteria the item checked by the examining dentist was other than normal then the subject was considered to have gingivitis. Thus only the presence or absence of gingivitis in the papillae of the lower incisors was indicated and no record of the extent or severity of the disease was made.

Although only the papillae of the lower incisors were examined for the presence of gingivitis, it has been shown in an adult population[5] that, of all tooth groups, these teeth produce the highest periodontal scores when Russell's index[9] is utilized. Using the PMA index,[10] it was shown in one study[11] that the anterior segments alone provided a valid index of gingivitis throughout the mouth.

However, the results of a second study[12] indicate that from 10 to 25 per cent of the children with gingivitis are missed if only the anterior segments are examined. Nevertheless, exclusion of this small proportion of children is unlikely to produce significant bias.

Gingivitis and Oral Hygiene.—The relationship between gingivitis and oral hygiene has been established previously, and the results of the 1962 Greater Vancouver dental health survey reaffirm this relationship (Table 1). Whereas only 11.5 per cent of the children with good oral hygiene have gingivitis, 29.7 per cent of those with poor oral hygiene are so classified.

Using the chi-square analysis test with one degree of freedom, the data in Table 1 give a result of 76.2, which is statistically significant at the one per cent level of confidence.

Gingivitis and Malocclusion. — A relationship between gingivitis and malocclusion is indicated by the results shown in Table 2. Of the 606 children with normal occlusion only 78 or 12.9 per cent have gingivitis, whereas 21.1 and 22.4 per cent of the children with minor and severe malocclusion respectively are so classified.

The resulting chi-square of 18.7 is statistically significant at the one per cent level of confidence.

Since the results in Table 2 indicated a difference in the prevalence of gingivitis among the three occlusion groups, a further analysis was made to evaluate the prevalence of the disease for each of the indices utilized for the purpose of establishing occlusion status.[8] These indices are molar relationship, the relationship of the mandibular cuspid to the maxillary cuspid, crowding of any teeth, drifting of any teeth, anterior or posterior crossbite, overjet, and overbite.

Of these indices only those relating to crowding, overjet and overbite reveal differences in the prevalence of gingivitis which are statistically significant at the one per cent level of confidence (Table 3).

With respect to crowding, 26.6 per cent of the children with gross crowding of any teeth have gingivitis, as compared to 16.6 per cent of those children without gross crowding (Table 3).

Children with positive overjet (4 mm. or more) or negative overjet (1 mm. or more) experience a much higher prevalence of gingivitis than do children with normal overjet, the respective percentages of children with gingivitis being 25.9 and 15.8. The percentages of children with gingivitis for the groups with normal or abnormal overbite are nearly identical to the percentages for children with normal or abnormal overjet. Of the children with overbite (4 mm. or more) or openbite, 25.5 per cent have gingivitis as compared with 15.7 per cent of the children with normal overbite.

Since the results of the comparisons between gingivitis and overjet and gingivitis and overbite were very similar, we investigated the possible association between overjet and overbite. We found that of the 271 children with gingivitis, 207 or 76.4 per cent were classified as either normal for both the overjet and overbite indices or abnormal for both indices. There were 983 or 79.9 per cent of the 1,230 children without evidence of gingivitis who similarly were classified the same for both indices. This suggests that these two indices are closely related to each other as well as to gingivitis. Perhaps really only a single relationship, derived from two aspects of the same type of malocclusion, has thereby been evaluated.

Since only the papillae of the lower incisors were examined for the presence or absence of gingivitis, some other children who may also be suffering from gingivitis were not so classified. For this reason, relationships between gingivitis and the other forms of malocclusion not dem-

TABLE 2 Number of Vancouver children 7 - 15 years of age by gingival status and degree of malocclusion.

Gingivitis	Normal occlusion		Minor malocclusion		Severe malocclusion		Total	
	No.	%	No.	%	No.	%	No.	%
Present*	78	12.9	122	21.1	71	22.4	271	18.1
Absent†	528	87.1	456	78.9	246	77.6	1,230	81.9
Total	606	100.0	578	100.0	317	100.0	1,501	100.0

*Gingivitis present in the papillae of the lower incisors.
†Gingivitis not present in the papillae of the lower incisors.

TABLE 3 Number of Vancouver children 7 - 15 years of age by gingival status and occlusion index.

Gingivitis	Occlusion index						Chi-square
	No.	%	No.	%	No.	%	
	No crowding		Gross crowding		Total		
Present*	213	16.6	58	26.6	271	18.1	
Absent†	1,070	83.4	160	73.4	1,230	81.9	11.9
Total	1,283	100.0	218	100.0	1,501	100.0	
	Normal overjet‡		Overjet positive 4 mm. or more or negative 1 mm. or more		Total		
Present*	184	15.8	87	25.9	271	18.1	
Absent†	981	84.2	249	74.1	1,230	81.9	17.5
Total	1,165	100.0	336	100.0	1,501	100.0	
	Normal overbite§		Overbite 4 mm. or more or openbite		Total		
Present*	180	15.7	91	25.5	271	18.1	
Absent†	964	84.3	266	74.5	1,230	81.9	16.7
Total	1,144	100.0	357	100.0	1,501	100.0	

*Gingivitis present in the papillae of the lower incisors.
†Gingivitis not present in the papillae of the lower incisors.
‡Defined as: positive overjet of less than 4 mm., edge to edge incisal relationship, and negative overjet of less than 1 mm.
§Defined as: overbite of less than 4 mm.

onstrated by this study may be established when more comprehensive data are available.

Gingivitis and Dental Caries Experience. — Comparisons of DMF tooth rates by age group and gingival status do not reveal any differences of statistical significance. The data in Table 4 show that the mean DMF rate per child for those children with gingivitis is slightly higher than the mean DMF rate for those children not so classified, at ages seven, 13 and 15 years, and slightly lower at ages nine and 11 years. For all ages seven to 15 years combined, the mean DMF rate per child for those children with gingivitis is 6.03, which is marginally lower than the rate of 6.17 for children not recorded as having evidence of gingivitis. This difference, and the corresponding differences for the individual age groups, are not statistically significant.

We therefore conclude that caries history of the permanent dentition is not significantly related to gingivitis in the age group (7-15 years) under discussion.

Gingivitis and DMF Components. — In order to test for a relationship between gingivitis and the presence of carious permanent teeth, the DMF rate was separated into the individual components, which for the purpose of the British Columbia dental health surveys are:

(a) teeth prematurely lost (excluding traumatic and orthodontic loss),

TABLE 4 Number of Vancouver children by gingival status, DMF rate and age group.

Statistic	Age group and gingival status										7 - 15 years combined	
	7 Years		9 Years		11 Years		13 Years		15 Years			
	Gingivitis		Gingivitis		Gingivitis		Gingivitis		Gingivitis		Gingivitis	
	Present*	Absent†	Present*	Absent†	Present*	Absent†	Present*	Absent†	Present*	Absent†	Present*	Absent†
Number of subjects	59	241	46	238	73	264	41	221	52	266	271	1,230
Total DMF teeth	116	426	154	864	349	1,358	380	1,840	634	3,096	1,633	7,584
Mean DMF per child	1.97	1.77	3.35	3.63	4.78	5.14	9.27	8.33	12.19	11.64	6.03	6.17
Standard deviation of mean	1.70	1.81	1.45	1.81	3.44	2.97	5.28	4.32	4.77	4.74	5.17	4.89

*Gingivitis present in the papillae of the lower incisors.
†Gingivitis not present in the papillae of the lower incisors.

TABLE 5 Mean number of permanent teeth per Vancouver child, by gingival status, DMF components and age group.

DMF components	Age group and gingival status										7 - 15 years combined		
	7 Years		9 Years		11 Years		13 Years		15 Years				
	Gingivitis		Gingivitis		Gingivitis		Gingivitis		Gingivitis		Gingivitis		
	Present*	Absent†	Present*	Absent†	Present*	Absent†	Present*	Absent†	Present*	Absent†	Present*	Absent†	P‡
Lost	†	0.01	†	0.06	0.18	0.19	0.54	0.42	0.48	0.62	0.22	0.26	50.0
Abscessed	§	§	0.04	0.02	0.01	0.03	0.32	0.07	0.21	0.08	0.10	0.04	3.0
Carious	1.64	1.11	1.65	1.52	2.26	1.62	3.32	2.43	5.15	2.62	2.74	1.86	0.01
Restored	0.32	0.65	1.65	2.04	2.33	3.30	5.10	5.40	6.35	8.32	2.97	4.00	0.10
Total DMF•	1.97	1.77	3.35	3.63	4.78	5.14	9.27	8.33	12.19	11.64	6.03	6.17	70.0

*Gingivitis present in the papillae of the lower incisors.
†Gingivitis not present in the papillae of the lower incisors.
‡Approximate percentage probability of differences between means for 7-15 years combined occurring by chance.
§Less than 0.005.
•Totals may differ slightly from sums of DMF components due to rounding off of means.

(b) teeth abscessed and (or) have crowns destroyed,

(c) carious teeth (excluding those recorded in (b) above),

(d) completely restored teeth.

Table 5 demonstrates the DMF rate components by gingival status and age group. It may be noted that a pattern is established in the seven-year age group which is maintained throughout. Children in each age group with gingivitis have a higher mean number of carious permanent teeth and a lower mean number of restored permanent teeth than had children not so classified.

Using the 't' test with a five per cent level of confidence, the mean number of carious permanent teeth for children with gingivitis is significantly higher than the mean for children not so recorded in this study at ages seven, 11, and 15 years, and for all ages seven to 15 years combined. For the same age groups the mean numbers of restored permanent teeth per child are significantly higher among children classified as not having gingivitis compared to those with gingivitis.

The observed total numbers of permanent teeth of children of all age groups are shown in Table 6 for each of the DMF and gingivitis categories. Also shown are the expected numbers of teeth in these categories had there actually been no differences in the proportions of lost, abscessed, carious, and restored permanent teeth occurring in the groups with and without gingivitis.

The resulting chi-square value of approximately 165 is highly significant, with far less than a one per cent probability of this result occurring by chance.

Gingivitis and Professional Dental Care. — Investigation of a relationship between gingivitis and differing levels of professional dental care in respect to the treatment of dental caries was also made. To this end the entire sample of 1,501 children was divided into four groups (Table 7). The first group, "no treatment required," included all children with no abscessed, carious, or restored permanent teeth. The second group, "completed treatment," comprised all children with restored but no abscessed or carious permanent teeth. In this context "treatment" refers only to treatment of carious lesions. Children with both restored and either abscessed or carious permanent teeth were included in the group "partial treatment," and children with abscessed or carious but no restored permanent teeth were included in the final group, "neglected treatment."

Of 467 children who had completed treatment for dental caries, 55 or 11.8 per cent evidenced gingivitis, compared to 16.4 per cent of those who had never required restorative treatment. Of the children who had partial or neglected treat-

TABLE 6 Observed and expected numbers of permanent teeth of Vancouver children 7 - 15 years of age by gingival status and DMF components.

Gingivitis	DMF components								Total DMF teeth
	Lost teeth		Abscessed teeth		Carious teeth		Restored teeth		
	Observed	Expected	Observed	Expected	Observed	Expected	Observed	Expected	
Present*	60	67.9	27	13.6	742	537.4	804	1,014.1	1,633
Absent†	323	315.1	50	63.4	2,291	2,495.6	4,920	4,709.9	7,584
Total	383	383.0	77	77.0	3,033	3,033.0	5,724	5,724.0	9,217

*Gingivitis present in the papillae of the lower incisors.
†Gingivitis not present in the papillae of the lower incisors.

TABLE 7 Number of Vancouver children 7 - 15 years of age, by gingival status and state of professional dental care.

Gingivitis	State of professional dental care								Total	
	No treatment required		Completed treatment		Partial treatment		Neglected treatment			
	No.	%	No.	%	No.	%	No.	%	No.	%
Present*	26	16.4	55	11.8	109	20.0	81	24.5	271	18.1
Absent†	133	83.6	412	88.2	436	80.0	249	75.5	1,230	81.9
Total	159	100.0	467	100.0	545	100.0	330	100.0	1,501	100.0

Note: "Treatment" refers only to treatment of carious lesions.
*Gingivitis present in the papillae of the lower incisors.
†Gingivitis not present in the papillae of the lower incisors.

ment of dental caries, 20.0 and 24.5 per cent respectively evidenced gingivitis.

The resulting chi-square value of 23.5 for three degrees of freedom is statistically significant at the one per cent level of confidence.

Discussion

In summary, children with poor oral hygiene, malocclusion, or unmet dental restorative needs have, on the average, a higher prevalence of gingivitis than do children with good oral hygiene, normal occlusion or completed dental caries treatment. The total caries experience of children, as measured by DMF tooth rates, does not appear to be meaningful in relation to the presence of gingivitis, whereas the presence of untreated carious lesions seems to be a significant factor in the presence of gingivitis. To the question whether or not there is a cessation of the onset of gingivitis in the face of far advanced carious lesions, the data considered here tend to deny this assertion since the mean number of permanent teeth which are abscessed and (or) have their crowns destroyed per child is higher for children with gingivitis (0.10) than for children classified as not having gingivitis (0.04). This difference, however, is not statistically significant at the one per cent level of confidence.

Children who have either received completed professional dental care for caries lesions or who have never experienced dental caries, evidence less gingivitis than do children who receive only partial or no treatment at all. This is nearly equivalent to saying that children with gingivitis have on the average more carious and fewer restored permanent teeth than do children without evidence of gingivitis. These two approaches to the same relationship merely reflect the lack of certainty regarding the direction of the inference, i.e. whether caries predisposes to gingivitis or vice versa. The data considered in this study do not indicate the direction or nature of any cause and effect relationship between these conditions if such actually exists. It may well be that they are mutually independent to a degree but share a common predisposing factor or factors, such as oral hygiene, occlusion, etc., as well as the broader concepts of socio-economic status.

Conclusions

From the data considered in this study the following conclusions are indicated:

1. A positive statistically significant relationship between poor oral hygiene and the presence of gingivitis has been re-affirmed.
2. A positive statistically significant relationship has been demonstrated between malocclusion and the presence of gingivitis, and specifically between crowding of any teeth, overjet, and overbite and the presence of gingivitis.
3. Children with gingivitis have a significantly higher mean number of carious and a significantly lower mean number of restored permanent teeth than do children classified as not having gingivitis.
4. A statistically significant relationship between the prevalence of gingivitis and the level of professional dental care, has been demonstrated.

Résumé

L'analyse de statistiques provenant de l'examen dentaire de 1,501 écoliers de 7 à 15 ans du Grand Vancouver, en Colombie britannique, entrepris au printemps de 1962 révèle:

1. Qu'il y a un rapport positif direct entre la mauvaise hygiène buccale et la présence de gingivite.

2. Qu'il y a un rapport positif direct entre les malocclusions et la gingivite; entre la superposition des dents, la surocclusion, la projection des dents et la gingivite.

3. Que les enfants qui souffrent de gingivite ont une moyenne plus considérable de caries et une moyenne plus faible

d'obturations que les enfants qui ne souffrent pas de gingivite.

4. Qu'il y a une relation évidente entre l'incidence de la gingivite et l'importance apportée aux soins dentaires.

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Parliament Buildings

What does the grade nine student eat?

Jill M. Armstrong, M.A., Josephine L. Peckham,† B.A., Elizabeth Steen Templeton,‡ B.Sc., Ann Matthews Bodley,§ M.A. and Barbara A. McLaren, Ph.D.,• Toronto, Ontario*

Present techniques of nutrition education do not meet the needs of Toronto teenagers.

■

L'éducation actuelle sur les techniques d'alimentation ne répond plus aux exigences des adolescents du Toronto Métropolitan.

This study was conducted under the auspices of the Toronto Nutrition Committee and partly supported by a grant from the University of Toronto, Household Science Alumnae Research Fund.

*Ryerson Polytechnical Institute.
†Toronto Board of Education.
‡Toronto Department of Public Health.
§Milk Foundation of Toronto.
•Dean, Faculty of Food Sciences, University of Toronto.

Dietary studies assessing nutritive quality have been carried out with a number of different population groups. A detailed quantitative record of all foods consumed by an individual over a given period has been the measurement most widely used. The ideal length of time for keeping a food record has always been subject to controversy. The longer period is frequently associated with lessened interest and lack of co-operation on the part of the subjects; the shorter period is thought to provide more accuracy, especially with larger groups of subjects.[1] Recently, in the United Kingdom, Marr et al[2] compared individual weekly dietary records of weighed foods eaten with general food use information secured by a question-

naire. They found good correlation between the two types of studies. In another study in the United States, Chalmers et al[3] reported that as far as accuracy was concerned, it was usually immaterial which day of the week was chosen for dietary study as long as it was not on the weekend.

Accordingly, the Toronto Nutrition Committee planned a survey in 1962 to help committee members in their work of teaching nutrition in schools, health and welfare organizations and to various adult groups. The main intent was to provide local nutrition information for the guidance of public health nurses and teachers of home economics, physical education or science. Grade 9 students in Toronto secondary schools were selected as subjects for the investigation. In order to disturb regular school routine as little as possible it was decided to carry out a general food use survey instead of a detailed dietary record. A sub-committee devised a list of questions designed to elicit information regarding the habitual use of various foods. Though these data could not be sufficiently specific to establish the nutritional status of grade 9 students, they were expected to indicate the daily meal pattern of the average Toronto adolescent.

Experimental method

Sample.—About 8,000 grade 9 students in thirty-two public, separate and private schools in Greater Toronto were selected to fill out the questionnaire.

Time and Duration of the Survey. — Earlier studies on grade 6 (1952) and grade 8 (1956) students had been carried out by the committee on a single day in February. The present study was again conducted on a Wednesday in February, 1962, thus eliminating any possible variation due to seasonal effect.

Questionnaire. — The questionnaire was designed so that the data could be tabulated on punch cards for electronic processing. Colour coded forms were used to separate data by sex. Subjects answered the thirty-seven questions by checking the category which indicated their regular daily or weekly intake of the essential foods recommended in Canada's Food Guide, as well as some non-essential dessert and snack items. A question on the daily use of a pharmaceutical supplement containing vitamin D was included because of its role in bone formation and also because in the northern hemisphere a person is not exposed to the sun's rays to the same extent in winter as in summer. The name of the supplement was requested so that the Committee could determine whether, in fact, it contained vitamin D or not. The answer to this question was interpreted before processing the questionnaires.

There was also a four-parts question designed to measure student participation in the required school physical education program. Elsewhere in the questionnaire the student was asked to indicate whether he brought his lunch or purchased his noon meal in the cafeteria. Answers also established how many students ate breakfast regularly. Those who did not eat this meal recorded their reasons for its omission.

In setting up the questionnaire, an attempt was made to determine the different levels of intake of specific foods. For example in the case of milk, an essential food, a student could check zero, 1, 2, 3, 4, or more glasses per day. Three or more servings per day were arbitrarily designated as a reasonable daily intake, and so were classified as "satisfactory;" less than three servings constituted a "fair intake." Similarly, in the case of soft drinks listed among the snack foods, more than two bottles per week was considered "excessive;" intake of less than two bottles was recorded as "limited." It should be noted that these categories were only a guide to measurement for this study, and not an endorsement of intake!

When the results of the study had been tabulated, the raw data indicating general percentage intakes in each food grouping

TABLE 1 Percentage of grade nine students who reported a "satisfactory" intake of essential foods, and "excessive" intakes of snack foods.

Food	Criteria	Per cent of students
Essential foods		
Milk	3 or more glasses per day	62
Fruit and vegetable juice	1 or more servings per day	35
Citrus fruits	1 or more servings per day	30
Other fruits	1 or more servings per day	30
Potatoes	1 or more servings per day	47
Vegetables, raw	1 or more servings per day	20
Vegetables, cooked	2 or more servings per day	16
Meat	1 or more servings per day	58
Eggs	2 or more servings per week	70
Cheese	2 or more servings per week	50
Liver	1 or more servings per week	15
Dried peas or beans	1 or more servings per week	49
Cereals	1 or more servings per day	31
Bread	2 or more slices per day	83
Vitamin D supplement	400 international units per day	31
Ice cream	Not more than 4 servings per week	77
Puddings	Not more than 4 servings per week	73
Snack foods		
Soft drinks	more than 2 bottles per week	46
Tea, coffee	more than 1 serving per day	37
Pastries	more than 1 serving per day	61
Potato chips and fries	more than 4 servings per week	65
Nuts	more than 2 servings per week	52
Popcorn	more than 2 servings per week	47
Candy	more than 2 servings per week	38
Chocolate bars	more than 2 servings per week	47

were supplied to the participating schools so that principals, teachers of health, home economics and physical education, and school nurses could compare their students' performance with the overall city average. Correlation matrices were run for each of the questions on essential and snack foods.

Results and discussion

In Table 1 data on the regular use of foods which would be found in a satisfactory meal pattern are presented for all students who completed a questionnaire. It should be noted that if a student met the criteria for each food requirement and for vitamin D as set forth in this plan he would be assured of an adequate supply of all the essential nutrients and calories required for his optimum growth and development.

Analysis of these data yielded some interesting results. Similar reports from both Canada and the United States have previously shown that well above 90 per cent of the students concerned ate one or more servings of meat per day. In the present study, however, only 58 per cent of the students ate meat as frequently. Such a discrepancy might be explained by the fact that many of the earlier studies were based on a one-day recall method or on a one-week food record, while the present questionnaire aimed at a record of habitual food use. It should be noted also that this inquiry was designed to determine dinner meats rather than meat used in sandwiches, snacks or in combi-

nation dishes, as in the earlier questionnaires. A similar explanation might apply to the lower intake of vegetables (raw and cooked), citrus fruits and juices found in the present study. The frequency of drinking milk appeared to be higher in this study than in previous surveys, but it should be pointed out that no attempt was made to determine the size of the glass used. Moreover, the criterion for "satisfactory intake" was lower than previously suggested. It is evident that bread (83 per cent), ice cream (77 per cent) and pudding (73 per cent) enjoyed the greatest acceptance of all the foods listed. Now that most flour is enriched and enriched bread is made with non-fat milk powder, two slices of bread per day can contribute 4 Gm. of protein and significant amounts of thiamine, niacin, riboflavine and iron which are valuable for growing boys and girls. Many present-day educators are concerned about the high caloric content in ice cream and puddings but others argue that ice cream and even some puddings are basically foods with significant amounts of protein, calcium and riboflavine. If eaten by active children, the extra calories in ice cream will be used for energy. Because of the contribution of valuable nutrients which these foods make to an adequate food intake, it is reasonable to approve a moderate consumption of these foods for this age group.

Direct correlation between the intake of soft drinks and other foods eaten, appeared to be higher with the snack foods than with those foods appearing in Canada's Food Guide. However, when the same correlation procedure was used with milk, higher values were found with those foods forming a normal meal pattern than with the snack foods. Again, however, it should be pointed out that these correlation values were too low to permit assigning significance to the relationships. They are mentioned only to note the connection between the two categories of essential and non-essential foods.

The results of a survey of this type must be considered in relation to the limitations which are inherent in each step of the program. There are possibilities for ambiguity in any such questionnaire through (a) misinterpretation of questions by the student; (b) incompatibility of the criteria for a certain food intake with the way a given person lives; (c) performance of the student answering the test; (d) errors in the transfer of data from the test sheet to a "punched" card; and (e) discrepancies in the interpretation of the data. Therefore, the results of this survey indicate only the general food use pattern of specific foods for grade 9 students and nothing more. For example, the data show how many students ate eggs in their daily menu but they do not include the amount of egg that was incorporated into other food products such as baked goods.

The advantage of a survey of this type over the one-day method is that it helps to give a more complete picture of the food habits of the teenager. Since boys and girls are under great stress both mentally and physically, it is imperative that they should be guided into food habits which will ensure an adequate intake of all the essential nutrients. The aim in teaching nutrition is therefore to form proper eating habits as early as possible. If educators could impress upon their students the value of buoyant health which provides increased resistance to many diseases they would undoubtedly be assured of brighter, more enthusiastic classes motivated to desire the most from life. For instance, the data concerning snack foods might be used to advantage as a teaching device. The importance of eating foods that contain complete protein, vitamins and minerals before eating the extra foods which provide mainly calories could be stressed more than it is at present. And aside from the nutritional inadequacy of snack foods, the dental implication is important. A well-known Swedish study[4] with adults has publicized widely the effect of between meal sweet snacks with certain physical qualities upon the incidence of dental caries. In fact the number of cavities developed by

the subjects who indulged in sweet snacks was so impressive that the experiment was not even carried to completion. As a result of this report many dentists have tried to discourage between meal eating entirely. However, the possibility of completely eliminating the snack habit of either teenagers or adults appears quite remote. A more positive approach would probably be (a) to develop foods that fulfil the requirements of a snack but do not contain excessive amounts of sugar and other cariogenic factors, and (b) to teach people of all ages that fresh fruits, raw vegetables and various cheeses make very satisfying between-meal foods. Advertising agencies and food industries might well direct some of their sales promotion to selling these foods in small snack-size packages.

Summary and conclusions

A survey based on Canada's Food Guide was carried out on approximately 8,000 grade 9 students in the Toronto area in 1962 to determine the pattern of food use. Participation in physical and health education programs and the prevalence of missing breakfast were also recorded but are not reported in this paper. In general there was a wide variation in the food eaten by teenagers. The regular intake of milk was greater than among grade 8 students surveyed in 1956. The use of citrus fruits and vegetables had apparently decreased. The number of students reporting an intake of one or more servings of meat per day had decreased from 96 to 58 per cent over the last six years. But this was doubtless due to the fact that the questionnaire in the present survey was designed to record only dinner meats rather than meat used in sandwiches, snacks, or in combination dishes.

It is obvious from this study that the present techniques of nutrition education are not adequate to meet the needs of the teenage group.

Résumé

On a mené, en 1962, une enquête à l'aide du Canada's Food Guide, auprès de quelques 8,000 étudiants des classes de 9e année de Toronto, pour connaître les aliments qu'ils consomment. Le but de ces recherches était de fournir des renseignements au sujet de l'alimentation des gens de la ville aux infirmières en hygiène publique, aux professeurs d'économie domestique, d'éducation et de science physiques.

On a constaté qu'en général les adolescents consomment une grande variété de nourriture. La consommation soutenue de lait est plus considérable que celle des élèves de 8e année dont on a étudié la nourriture en 1956. La consommation de légumes et de fruits de la famille des oranges a diminué. Le nombre des étudiants qui ont déclaré prendre une ou plus d'assiétés de viande a diminué, au cours des dernières six années (de 96 à 58 pour cent). Cette constatation s'explique peut-être par le fait que le questionnaire de 1962 n'indiquait que les repas de viande, sans mentionner celle mangée dans des sandwichs, des collations ou mêlée à d'autres aliments.

Les auteurs en ont conclu que l'éducation actuelle sur les techniques d'alimentation ne répond plus aux exigences des adolescents du Toronto Métropolitain.

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Faculty of Food Sciences,
University of Toronto

Diphenylhydantoin-induced gingival hyperplasia and severe mental depression in an epileptic patient were markedly improved following alteration of drug dosage.

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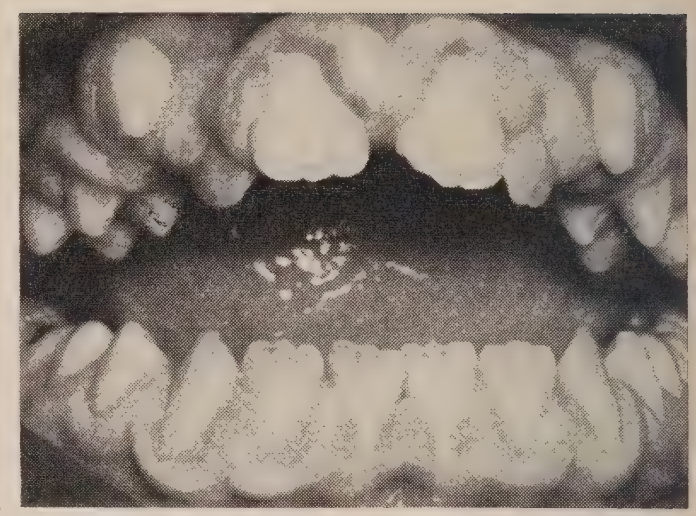
Une amélioration notable dans l'état nerveux et celui des gencives s'est produit dans un épileptique après diminution et remplacement partiel de doses de diphenylhydantoin.



Improved gingival and mental condition following reduction of diphenylhydantoin medication for epilepsy

J. R. Trott, B.D.S., (Adel.) and K. Neuman, D.M.D., (Man.), Winnipeg, Manitoba

Drug induced gingival hyperplasia has been a well recognized entity ever since the introduction of sodium diphenylhydantoin (Dilantin, Epanutin) as an anticonvulsant for epilepsy. The number of patients who show such gingival hyperplasias while on the drug varies considerably. There seems little doubt that each patient has a slightly different reaction to the drug, for the number of people who show gross disfigurement because they are under medication would appear to be relatively few. It is understandable that such gross changes in the gingiva may cause a certain degree of concern to the patient, but we were dismayed that such changes could induce a young girl to threaten suicide. This report is presented to show the change in the gingival condition following an alteration in the balance of drugs used. But probably more important is the improvement of the patient's mental well being due to the alleviation of some of her oral symptoms, as well as the stabilization of her neurological symptoms.

From the Department of Periodontology, University of Manitoba, Winnipeg.

FIGURE 1 Anterior view of face showing incompetent lip posture.

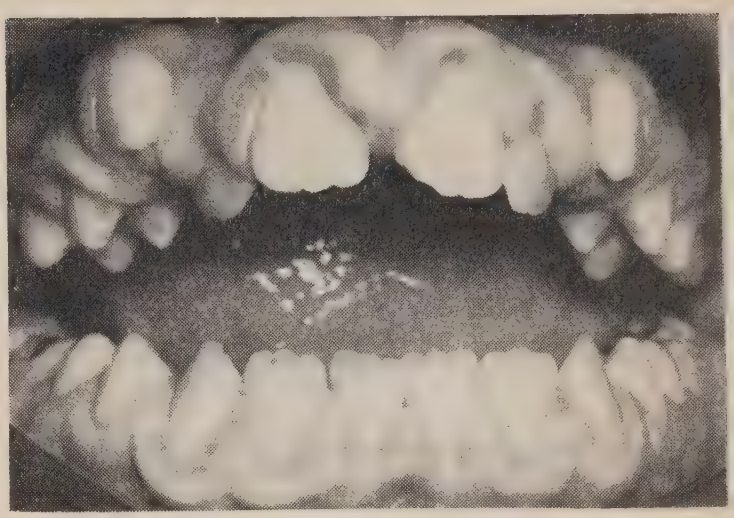


FIGURE 2 Anterior view of the gingiva showing pronounced gingival hyperplasia, January 1963.

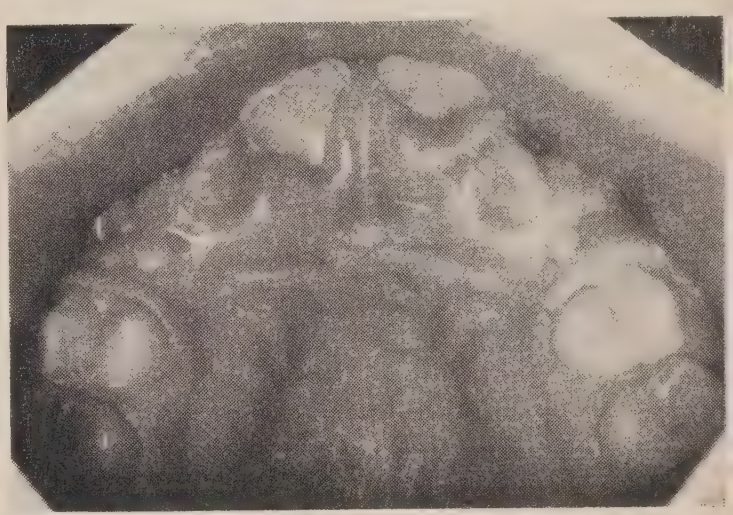


FIGURE 3 Palatal view showing the gingival enlargement lingual to the anterior teeth.

Case report

In January 1963 a girl, aged 11 years and three months, came to the University of Manitoba Dental Clinic complaining of the appearance of her mouth. She was a thin, nervous child, slightly tall for her age, who tried to hide her mouth behind her hand when she spoke. It was difficult at the first visit to obtain a very satisfactory history, but as time progressed the girl overcame some of her awkwardness and shyness and confided in us many of her problems.

Clinical examination showed a marked lack of anterior lip seal associated with an incompetent upper lip (Figure 1). The papillary, marginal and attached gingiva on the labial aspects of the teeth from first bicuspid to first bicuspid were markedly enlarged, firm on palpation, showed a coarse stippling and were of a normal colour (Figure 2). On the lingual aspects of these teeth the gingiva was enlarged in the maxilla but not in the mandible (Figure 3). The maxillary cuspids were beginning to erupt in the attached gingiva between the lateral incisors and first bicuspids but were crowded out of the maxillary arch. The mandibular arch did not show any crowding. All the permanent teeth from central incisors to second molars were present. Caries prevalence was fairly low. Her oral hygiene was good. There was a marked anterior open bite and the only teeth which were in occlusion were posterior to the first bicuspids. The patient exhibited an abnormal lower lip-tongue swallowing habit. This may have resulted from the incompetent lip seal and anterior open bite. It may also have been

accentuated by the anterior tooth relationships.

The patient had a history of persistent thumbsucking from the age of six years to nine years of age. During this period an appliance was made to correct the habit. It was difficult to ascertain what type of appliance was used and whether or not the thumbsucking habit had started before the age of six years. This habit may have also accentuated the anterior open bite.

A medical history of epilepsy starting in 1956 (age four) was obtained. There had been considerable variation in the dosage of diphenylhydantoin administered over the previous seven years in combination with another anticonvulsant, mysoline (Primidone).

On questioning the mother we estimated that the child was taking 7½ gr. of diphenylhydantoin and 125 mg. of mysoline daily at the present time. At a later date, when the medical records were investigated, it was found that in July 1962 a prescription for 4½ gr. of diphenylhydantoin and 195 mg. of mysoline per day was given to the patient. Apparently the child was still quite liable to frequent nocturnal epileptic episodes at the time we first saw her. The gingival enlargement had become noticeable about a year after the patient had started taking diphenylhydantoin in 1956. In 1957 phenobarbital was added to the diphenylhydantoin but when this made the patient more excitable and kept her awake at night, it was discontinued.

An anterior gingivectomy was performed in February 1963 to try and relieve the patient's anxiety about her appearance, and a Hawley type appliance was inserted a week after the pack had been removed to see if any improvement in the anterior tooth alignment could be obtained. But by June 1963 the gingiva had returned to the same size and contour which we observed in January and appliance therapy was discontinued.

In June 1963 we also learned that the patient had threatened suicide and we were asked to attend a child guidance conference. Others present at this conference included a neurologist, social workers, a psychiatrist, a speech therapist, and the chairman of the Child Guidance Clinic. At this time much additional information about the patient became available.

There had been a drop of 17 points in performance on the I.Q. test held at this time, but her verbal functioning was good. She had recently failed all her subjects at school, and was slow at her homework. There was evidence of paranoid trends and depression, she felt rejected by her older and younger sisters as well as by her school friends. Neurological examination showed that there was poor balance and co-ordination and that in fact she frequently fell and bruised herself at school. Furthermore, the patient's mother had just been told that she herself would require an open heart operation in September 1963 which might well be fatal. Thus the father had to look after the girl.

The patient was conscious of her appearance and felt this was the principal cause for teasing by her school friends. Her menarche had commenced recently and the patient was conscious of her rapid adolescent development.

It was decided at the conference that no further treatment of any kind would be instituted until the patient had been seen again by the neurologist and the dosages of the drugs readjusted. A strong recommendation from us for a drastic reduction of diphenylhydantoin and an increase of mysoline was noted.

The patient was not seen again until October 1963 when a clinical examination was made and photographs taken. At this time we attended another child guidance conference in company with the previous participants. The dosage of drugs at this time was diphenylhydantoin 1½ gr. and mysoline 375 mg. per day.

During the intervening four months there had been a very marked improvement in all areas of concern. Although an I.Q. test had not been performed, the patient was keeping abreast of her age

group in school without difficulty and had done well in her mid-term examinations. She was having less trouble at home with her work. Her father reported that she had not had any further epileptic episodes since the drug dosage had been readjusted. On interview the patient was bright, talkative, no longer conscious of her oral appearance, and a completely different individual.

The oral condition showed a marked change. The gingiva around the mandibular teeth had returned to practically a normal contour. In the maxilla the gingiva, although still slightly enlarged around the margins of the teeth, improved considerably (Figure 4). There may have been further eruption of the cuspids and closure of the diastema between the maxillary central incisors.

FIGURE 4 Anterior view of the gingiva showing improvement in the gingival condition. Note anterior open bite when posterior teeth are in occlusion. October 1963.

Discussion

The clinical effect of sodium diphenylhydantoin on the gingival tissue is well known. The reason for this selective action is unknown. It has also been recorded on more than one occasion (Bradford [1956] and Trott [1958][1,2] that the gingival hyperplasia resolves and the gingiva resumes normal contour if this drug is discontinued or another anticonvulsant substituted.

This case is reported for two reasons: (1) improvement of the gingival condition and (2) improvement of the mental attitude of this patient.

The gingival tissues improved markedly during a relatively short period of time, even though sodium diphenylhydantoin was still being administered. Panuska et al (1961)[3] claim that the amount of hyperplasia is related to the amount of daily intake of this drug. Statistical analysis of their data, however, only suggests this relationship but does not prove it. In the case here reported, where a combination of drugs was used, it appears that mysoline may somewhat diminish the effect of diphenylhydantoin on the gingiva. Admittedly one case does not necessarily prove this contention beyond all reasonable doubt. It may, however, induce neurologists to try a combination of anticonvulsant drugs so that epilepsy can be controlled without necessarily causing a gingival hyperplasia.

The other disturbing feature of this case was the psychological one. A combination of circumstances led a young and not unattractive girl to think of and even threaten suicide. One of the factors causing her concern was the unsightliness of her mouth. This was much more of a problem to her than we first imagined. The change in her mental attitude by October 1963 was no doubt due mainly to the reduction in the drug dosage and the stabilization of her epileptoid state, but the marked improvement in her facial appearance also contributed considerably to her present well being.

It is also interesting to notice the effect which masticatory function may have on hyperplasia of the gingiva. In the anterior maxillary region on both the labial and lingual aspects of the teeth there was marked hyperplasia, while posterior to the first bicuspids there were no noticeable changes. This has been frequently observed in similar cases. The anterior gingival hyperplasia seen in this

patient may also have been aggravated by the incompetent lip seal, and it is difficult to know how much this factor may have influenced the gingival condition.

A further interesting point in this case is the widely held opinion that if one pill does so much good then two pills will do twice as much good. For some reason best known to the parents, drugs had been obtained and given to the patient in gradually increasing amounts for some time before we first saw her in January 1963. There was little doubt at the conference held in June 1963 that the patient was "nearly killed by kindness."

SUMMARY

A case report is presented of a patient who had marked gingival hyperplasia and neurological symptoms due to a high dosage of sodium diphenylhydantoin. A marked improvement in the mental and gingival condition was observed in the relatively short period of four months following a change in dosage of sodium diphenylhydantoin.

RÉSUMÉ

On rapporte ici le cas d'un épileptique montrant des symptômes neurologiques et souffrant d'hypertrophie marquée de ses gencives à cause de doses très fortes de médicaments anticonvulsifs—diphenylhydantoin (Dilantin) et mysoline (Primidone). Ce patient, à un moment donné, vint près de se suicider. Une amélioration notable de son état nerveux et de celui de ses gencives s'est produit en peu de temps, après une diminution de ses doses de diphenylhydantoin et une augmentation de ses doses de mysoline.

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Royal Commission advocates fluoridation, child dental care, new dental schools

The Royal Commission on Health Services has proposed a universal, comprehensive, government-sponsored health program for all Canadians. In its first report, released on June 19, the commission says "that Canada's human resources, men, women and children are worth the price that must be paid in taxes in ensuring that all Canadians may enjoy the best health possible in this era of scientific advancement and that Canada can afford the price."

The main dental features of the plan are:

Free dental services for all children under 18, expectant mothers and public assistance recipients;

Four new dental schools at Saskatoon, London, Ottawa and Quebec City, as well as expansion of existing schools; and

Fluoridation of all community water supplies.

The overall scheme would be run by provincial governments on the pattern of the existing hospital services program, with the federal government paying half the cost. The administrative agency would be a commission representing the public, the health profession and government and reporting to the provincial minister of health. In a province where a voluntary prepayment agency operates, this could be the nucleus of the commission.

Voluntary insurance cannot accomplish the necessary objective, the commission concluded. It rejects all methods of subsidizing individuals that would involve means tests because "the proportion of the population to be means tested would be too large and the administrative costs high . . . also because it is not in harmony with human dignity."

Canada's existing health services by 1971 will cost an estimated four billion dollars or $178 per person. The proposed medicare plan would cost an additional $466 million or $20 per person. The annual cost of the total scheme is thus expected to reach $4,481 billion or $198 per person, the commission predicts.

In 1971, the commission estimates 84.9 per cent of the health program will be financed publicly and the rest would remain in the private sectors. Dental care would then be the heaviest charge on the private purse — an estimated $331 million compared with government spending of $110 million.

Child dental care

Turning to the needs of children, the commission recommends a program to provide all necessary dental care for children up to the age of 18 free under a national health service scheme.

In the first year of the scheme — 1968, according to the commission — all children aged five and six would be entitled to dental examinations, restorative services and referrals to specialists if needed. Subsequently, a new age group covering one year of life would be added each year until, by 1980, every one up to 18 would be covered.

The program would have to be introduced in all provinces simultaneously to assure continuity of service for families that move across the country.

The program would be financed only from provincial and federal funds, without a premium, because it would exclude at its outset older children whose younger brothers and sisters might be eligible.

The commission considers this program so important that it should be implemented as soon as possible without waiting for the national health plan as a whole to go into effect.

Recognizing the existing shortage of dentists, the commission suggests the establishment of dental auxiliaries with two years post-high school training to staff children's clinics under dentists' supervision. These clinics would be paid for with the aid of federal grants amounting to 75 per cent of the cost up to 1969 and 50 per cent thereafter. To compensate for uneven distribution of dentists throughout the country, provinces should offer special subsidies to dentists willing to staff less desirable areas, the commission says.

It also proposes that dental services to expectant mothers be provided as part of a national health services program by 1971.

Fifty per cent of the cost of dental services to welfare recipients should be borne by the federal government, the comissioners say.

Fluoridation

Dentists are likely to welcome the commission's proposal for fluoridating every community water supply in Canada.

"Dental personnel are in such short supply that we will not, in our generation, have sufficient dental resources to meet our total needs," the commissioners acknowledge.

"The only possible effective solution is to reduce our needs as well as to enhance our resources," the report says. "Fortunately, the now proven method of fluoridation by use of controlled quantities of fluoride in community water resources goes beyond remedy; it does more by preventing the high proportion of dental caries even appearing at all."

Thirty years of evidence demonstrate that the technique of fluoridation, properly controlled, is effective, inexpensive and safe, the commissioners declare. "Wherever it has been adopted the savings in dental costs have been impressive and the reduction of human suffering equally great," they conclude.

To finance installation of fluoridation equipment, the commissioners ask the federal government to pay 75 per cent of the cost under a proposed Health Facilities Development Fund when communities implement this recommendation.

And, as an example to the rest of Canada, they call on the federal government to immediately fluoridate water supplies in areas or institutions under its jurisdiction — including the territories and armed forces establishments where children are located.

The commission adds that the Health Sciences Research Council (a proposed expanded version of the Medical Research Council) should study the efficacy of fluoridation. It also urges that fluoridation methods be sought to provide treated water to rural areas where there are no community water supplies.

Other proposals

The commission also advocates seven-year grants of $5,000 to dentists specializing in dental public health, university teaching careers or for participation in the children's dental program. Each dental student in the last two years of his

undergraduate course would be given a training grant of $2,000 if he were keeping up with the course.

The seven member commission included one dentist, C. L. Strachan of London, Ontario. Chairman of the commission was Mr. Justice E. M. Hall of the Supreme Court of Canada. The commission's investigations extended over a three-year period. Public hearings occupied the first year while the two years were taken up with special research studies and preparation of the report.

DENTAL RECOMMENDATIONS

Almost one-quarter of the 200 recommendations contained in the report of the commission are directed to dentistry. They are:

Principles and policies

1. That the federal government enter into agreements with the provinces to provide grants on a fiscal need formula to assist the provinces to introduce and operate comprehensive, universal, provincial programs of personal health services, with similar arrangements for the Yukon and Northwest Territories. The programs should consist of the following services, with the provinces exercising the right to determine the order of priority of each service and the timing of its introduction: medical services; dental services, for children, expectant mothers, and public assistance recipients . . .

Children's dental program

39. That the national health grants program be expanded to include a children's dental health grant to provinces to provide for dental services for children aged five and six years, in the first year, children aged four to seven in the second year, children aged three to eight in the third year, with the succeeding one year age groups to be added each subsequent year; the grant to be large enough to make provision each year for at least two examinations and the evident necessary care for each child.

40. That a dental construction and equipment grant be established under the Health Facilities Development Fund to provide funds for dental clinic facilities in hospitals, public health centres, schools, or other health facilities, for the purpose of the recommended program and, where necessary, equipment for travelling dental clinics, the federal share to be 75 per cent of the cost to 1969, and 50 per cent thereafter.

41. That the federal government provide matching grants under the National Health Grants program to meet the cost of the program, including the employment of dentists on either a full-time or sessional basis to direct the work of the clinics and provide continuing supervision of the dental auxiliaries, the employment of dental auxiliaries, the costs of referrals to specialists, and the operating costs of clinics, including transportation of personnel and equipment to outlying centres. In areas where none of the above-mentioned arrangements is feasible, special arrangements should be made with dentists in private practice. The remuneration for dentists in this program as in all other programs employing dentists should be competitive with incomes in private practice.

42. That dental public health educational programs be organized and actively promoted in all health regions or units in the nation.

43. That the Health Sciences Research Council establish as part of a continuing system of health statistics in Canada, a dental health survey including the maintenance of a dental health index established by the Canadian Dental Association.

44. That special consideration be given to the dental requirements of children suffering from physical or mental handicaps and the frequent need to admit

them to hospital in order to provide essential dental treatment.

Fluoridation

45. That every community water system in Canada be immediately equipped to provide, and does provide, the appropriate level of fluoride.

46. That the federal government provide under the Health Facilities Development Fund a grant to the provinces of 75 per cent of the cost of equipment and installation for fluoridating community water supplies.

47. That the Health Sciences Research Council provide for research and evaluation studies for the purpose of assessing the efficacy of fluoridation and the children's dental program.

48. That the federal government immediately provide for fluoridation of all water supplies in areas or institutions under its jurisdiction, viz., the territories, the armed forces establishments where children are located, and the like.

49. That in rural areas where community water systems are non-existent, the public health authorities adopt means for meeting fluoride needs.

Maternal dental health program

50. That a program of dental services for expectant mothers, with services provided by dentists in private practice be introduced as a benefit of the health services program in 1971, or as soon thereafter as it is deemed that dental manpower resources are adequate to meet the needs.

Distribution of dentists

51. That subsidies chargeable to the children's dental health program grant be used to attract dentists to rural areas, and that in areas with populations too scattered to warrant resident dentists, arrangements be made for travelling dental clinics, and that special inducements be offered to attract dental specialists to medium sized centres.

Welfare recipients

52. That all provinces introduce programs of adequate dental services for all recipients of public assistance and their dependants.

53. That the federal government contribute one-half the cost of such programs under the health services program.

Hospital dental departments

54. That all major general hospitals proceed as soon as possible to establish and equip a department of dentistry, providing both in-patient and out-patient services.

55. That a chief of the dental service be appointed in such hospitals.

56. That qualified dentists be appointed to the hospital staff.

57. That centres for treatment of cleft palate cases be established in children's hospitals and in general hospitals where adequate paediatric and associated services are available.

Education and recruitment: dentists

155. That funds be allocated from the Health Facilities Development Fund to provide for one-half the cost of the required expansion and renovation of the dental schools now operating at Dalhousie University, University of Manitoba, McGill University, University of Alberta, and the Université de Montréal.

156. That funds be allocated from the Health Facilities Development Fund to provide one-half the cost of construction of five new dental schools in the next ten years, two to be located in Ontario, the University of Ottawa and the University of Western Ontario, and one each at the University of British Columbia (now under development), Université Laval and the University of Saskatchewan, Saskatoon.

157. That provincial departments of education, in co-operation with the re-

spective provincial dental associations be encouraged to conduct recruiting campaigns, especially among students in small towns and rural areas, and to attract an increasing number of women into the dental profession.

158. That the professional training grant be increased to provide for an annual grant, on application, of $2,000 a year to each Canadian dental student with satisfactory performance in his final two years at a Canadian dental school.

159. That the Health Sciences Research Council endeavour to expand in Canada the amount of research on dental disease and prevention both by conducting intramural research and by increasing its grants to universities.

160. That to help ensure that dentists in practice maintain a high level of competence, dental schools inaugurate or expand programs of continuing education, and that fees, travel and living expenses for attendance at such courses be regarded as deductible expenses for income tax purposes.

161. That funds be made available to dental schools to provide adequate remuneration in order to increase the ratio of full-time to part-time staff.

162. That funds be made available to those schools that wish to convert to year-round operations for the purpose of improving the quality of its instruction and/or reducing the total length of time required to qualify for graduation or licensure to practise.

163. That additional funds be made available to universities to enable dental schools to expand graduate programs for training specialists and to add these programs where they do not now exist.

164. That to reduce the serious shortage of dental specialists, as part of the seven-year crash program, professional training grants of $5,000 be allocated to dentists undertaking postgraduate study including those taking dental public health and those preparing for university teaching.

165. That the dental schools provide special courses in children's dentistry and that professional training grants of $5,000 be made available as part of the seven-year crash program for dentists entering the service who wish to take advantage of the special courses, and preparation for a specialist's qualifications.

166. That the dental licensing authority in every province re-examine the general regulations with respect to the time that immigrant dentists are required to study in a Canadian dental school, with a view to increasing the inflow of qualified dentists.

167. That dentists employed by health agencies and particularly in the children's dental program be paid adequate salaries to attract a sufficient number of well qualified dentists.

DENTAL AUXILIARIES

168. That a dental auxiliary advisory training committee be appointed to the Department of National Health and Welfare, consisting, among others, of representatives of the Canadian Dental Association, the provincial dental colleges or boards, the National Dental Examining Board, Canadian dental schools, the Dominion Council of Health, L'Association des médecins de langue française du Canada, the Canadian Medical Association (Paediatric Section) and of Canadian women, together with the director of the Dental Health Division, Department of National Health and Welfare.

169. That this body, together with the deans of the dental schools, develop a curriculum that will qualify the auxiliaries in a two-year program.

170. That the dental auxiliaries be qualified to prepare cavities and place fillings in the teeth of children, under strict clinical and pre-clinical supervision, and to undertake dental health education and give instruction to patients in self care.

171. That dental auxiliaries be paid an adequate salary in order to attract a sufficient number of applicants.

172. That the federal government provide grants to dental schools and/or tech-

nical schools to provide the equipment and installations and provide the professional faculty required to establish the educational programs beginning in 1966, to train a minimum of 1,000 dental auxiliaries per year. Technical schools should also be assisted to establish courses for the preparation of dental technicians and dental assistants.

173. That the professional training grant and the technical and vocational grant be increased to provide bursaries to registrants to meet the cost of tuition, books and maintenance.

Children's dental health grant

198. That a children's dental health grant be introduced in 1967 to underwrite one-half the cost of a children's dental program to commence in 1968.

Priorities

199. That a federal-provincial conference be convened within six months of the tabling of Volume 1 of this report: (a) to initiate the necessary planning and fiscal arrangements for the co-ordinated implementation of the program as a whole; (b) to reach agreement on the implementation of the health services program we have recommended.

200. (2) That during the same period consultation should be initiated with the educational institutions: (a) looking to the implementation of those recommendations concerning the crash programs for the education and training of health personnel; (b) the organization and allocation of the resources required to introduce a children's dental program.

C.D.A. ISSUES STATEMENT ON ROYAL COMMISSION REPORT

The following statement regarding the report of the Royal Commission on Health Services was issued by the Executive Council of the Canadian Dental Association on June 23:

"The Royal Commission on Health Services has drafted a much needed blueprint for Canada's health planning which will be a valuable reference for years to come. The Hall Commission is to be congratulated for the thoroughness of its three-year investigation.

"The first volume of the commission's report — almost a thousand pages — has just been received. Officers of the Canadian Dental Association began their annual meeting in Edmonton today. They have not yet had the opportunity to read — let alone digest — the voluminous report. Such an impressive document requires intensive study by all agencies concerned with the health of Canadians. The Canadian Dental Association certainly will give the report the serious consideration it merits.

"Like the commission, the national dental organization believes wholeheartedly that the best possible health care should be available to the people of Canada. As it has said for many years, the Canadian Dental Association repeats now its willingness to co-operate in devising means of improving the level of dental health of the Canadian people.

"The commission's recommendations concerning dental health will be studied closely and carefully by the Association in the next few months. Only after such a review can comments be made upon the wisdom of specific recommendations.

"Suggestions which dentists believe will raise the level of dental health of their fellow citizens will receive the support of the dental profession."

The Royal Commission on Health Services speaks

The 63rd Annual Meeting of the Canadian Dental Association will long be remembered for an event that preceded it by a scant few days. For on June 19 Prime Minister Pearson unveiled the first volume of the report of the Royal Commission on Health Services. This action overshadowed subsequent deliberations of the Board of Governors and convention delegates in Edmonton.

Elsewhere in this issue there appears a condensed account of the commission's principal recommendations in the field of dentistry. It is too early, as yet, to determine the full impact of these proposals. But one thing is perfectly clear: the commission has analysed Canada's health needs and services as no other commission has ever done before. The depth of this analysis and the masterly presentation of facts and findings will surely evoke admiration regardless of whether one agrees or disagrees with the conclusions of the report. Moreover, the amount of attention directed to dental health is truly phenomenal and exceeds anything of this nature in any similar previous report. The Royal Commission is obviously perturbed over the state of dental health and considers priority action in this area as essential to national well-being. Consequently, no less than 40 of the commission's 200 recommendations deal directly with dentistry. And there are additional recommendations that have dental implications.

It would, of course, be both unwise and unfair to render premature judgement on a work of this importance on the basis of a hasty perusal of the report. The Association has likewise chosen to refrain from offering any comment at this time. Instead, the Executive Council has appointed a steering committee to conduct a detailed study of the report. Only after such review can comments be made upon the wisdom of specific recommendations. Undoubtedly those suggestions which dentists believe will raise the level of dental health of their fellow citizens will, in due course, receive the support of the profession.

English-French integration in the Journal

The Board of Governors of the Canadian Dental Association has spoken. It has spoken firmly, clearly and wisely. By resolution, the Board at its 63rd Annual Meeting in Edmonton decided that physical separation of French and English editorial matter should be discontinued in future issues of the Journal insofar as possible. The result will be apparent in the present and future issues.

For some years the *Journal of the Canadian Dental Association* has been one of the very few multilingual publications in the world to practise a form of linguistic separatism. This anachronistic pattern is no longer appropriate and is not in harmony with current trends in Canada. Moreover, serious disadvantages

accrue from perpetuation of literary separatism. It hinders communication by discouraging readers of one linguistic group from examining material published in the other language. By giving each issue a choppy appearance, editorial separation detracts from the visual appeal of the Journal. Two separate mast-heads reduce the ever-scarce space available for publication of the increasing number of professional papers and other information of importance to the profession. And lastly, physical separation imposes unnecessary difficulties in the make-up of each individual Journal issue.

Several innovations have recently been tested in an effort to remedy these deficiencies.

First there came the introduction in 1961 of brief bilingual summaries at the end of feature articles. These summaries serve a useful but limited purpose. In future they will precede the article to which they refer, thereby giving readers an opportunity to determine the essential content of the article that follows without having to plough through the text itself.

Secondly, a number of Association reports have recently been published simultaneously in English and French. Simultaneous bilingual publication brings this information to readers of both language groups at the same time and also permits a modest saving of Journal space, notably by eliminating duplication of tabular matter. The response has been gratifying, particularly from readers who appreciate an opportunity to study these reports prior to the annual meeting of the Board of Governors.

Finally, in May of this year the Journal appeared experimentally in fully integrated form. This issue met with widespread approval, a fact which undoubtedly contributed to the decision reached by the Board of Governors.

It is a wise decision which will help to draw together English-speaking and French-speaking Canadian dentists wherever they may be. And surely anything that draws us together in these critical times is to be applauded.

Le rôle du dentiste dans un hôpital

Cette question est à l'ordre du jour non seulement dans la province de Québec, mais dans le Canada tout entier.

L'Association dentaire canadienne, par le truchement de son comité des services dentaires hospitaliers, travaille dans ce domaine depuis plusieurs années et ses dernières réalisations se sont situées au niveau du Conseil canadien d'accréditation des hôpitaux au sein duquel siège ou siégera très bientôt un délégué de l'Association nationale.

Ce sujet intéresse tout le secteur professionnel qui s'occupe de la santé de notre population: gouvernement, professions médicale et dentaire, plan d'assurances sociales ou privées, universités, hôpitaux, infirmières et cætera. C'est dire son importance et son envergure.

Pour situer la base du problème, il faut dire que les *hôpitaux ont besoin des dentistes et que les dentistes ont besoin des hôpitaux.*

Ce besoin actuel est le fruit d'une évolution des deux parties intéressées. Les hôpitaux ont besoin des dentistes, parce qu'ils sont devenus des centres de santé, non pas seulement pour 90 pour cent de l'organisme humain, mais pour 100% du corps humain, la cavité buccale comprise.

La profession dentaire a aussi évolué. Le dentiste d'il y a cinquante ans s'intéressait surtout à l'aspect mécanique de sa discipline; le dentiste de 1964 fait des études basées sur les sciences biologiques, physiques et chimiques et son apport à la santé du public est plus positif, plus constructif.

Donc, deux premiers points: les hôpitaux doivent pouvoir offrir à leurs patients externes et à leurs patients hospitalisés des services complets; ensuite, les

*Communication présentée au congrès de l'Association dentaire de la province de Québec, le 23 mai 1964, à l'Estérel, Co. de Terrebonne.

dentistes sont mieux préparés qu'autrefois à aborder des problèmes plus vastes de prévention et de thérapeutique.

Autre aspect de la question: les dentistes ont besoin des hôpitaux pour y traiter certaines catégories particulières de leurs patients, qui, à cause de facteurs morbides, ne peuvent pas être traités en cabinet particulier.

Les hôpitaux ont besoin de plus des dentistes pour prendre soin de certains malades de l'hôpital, car les examens de laboratoire et les constatations cliniques montrent qu'il y a fréquemment une interdépendance entre l'état de la cavité buccale et l'état général.

Les hôpitaux, d'une façon générale, souhaitent la collaboration des dentistes. Ceux-ci prodigueront de bons services à l'hôpital pourvu qu'ils aient reçu un entraînement hospitalier approprié. Les hôpitaux, pour leur propre bénéfice, devraient donc ouvrir leurs portes aux étudiants en chirurgie dentaire.

La loi dentaire permet au dentiste de prodiguer des traitements et de prescrire des ordonnances quand il agit comme praticien privé. La même chose s'applique au médecin. Mais quand un médecin ou un dentiste se joint au personnel d'un hôpital sans but lucratif, un nouveau mode d'exercice entre en jeu. Le praticien tombe sous la juridiction de l'administration de l'hôpital. Il faut donc que la loi dentaire et que la loi des hôpitaux donnent le même sens aux prérogatives du dentiste.

Cette question de la participation du dentiste au travail d'équipe qui s'opère dans un hôpital est plutôt récente. Il est vrai que, depuis longtemps, des hôpitaux avaient dans leurs murs des dentistes pour y traiter les dents des malades, mais il s'agit maintenant de donner à ces départements dentaires une nouvelle orientation qui leur permette de s'intégrer à fond dans les activités normales d'un hôpital. Car, pour rendre des services réels, le dentiste doit jouir à l'hôpital d'une liberté, d'un statut équivalent à celui du médecin, c'est-à-dire avoir les mêmes privilèges et les mêmes obligations. Cela comporte aussi une collaboration sincère et la création de facilités qui permettent le plein épanouissement de la profession dentaire, c'est-à-dire des internats dentaires et la participation de l'hôpital à la formation scientifique des futurs dentistes.

Ces modifications — comme tout phénomène de croissance — ne se font pas sans heurts et sans sacrifices. Certains secteurs d'hôpitaux s'étaient accommodés — avec satisfaction parfois—de la quasi—absence du dentiste. Ces départements doivent réaliser maintenant que le rôle qu'ils ont joué dans le traitement des affections de la bouche n'était que temporaire et qu'ils doivent céder la place aujourd'hui à des spécialistes de ce domaine.

Enfin, dans toute cette organisation, il ne faut pas perdre de vue l'objectif no 1 qui est le bien-être de la population que nous sommes appelés à servir.

G. de M.

ENDODONTIC ACADEMY ORGANIZATIONAL MEETING SLATED FOR TORONTO, SEPTEMBER 23

An organizational meeting of the Canadian Academy of Endodontics will be held in the auditorium of the Faculty of Dentistry, University of Toronto, at 8.00 p.m. on Wednesday, September 23. All dentists interested in the study and advancement of endodontics are invited to attend. Those who are unable to attend may obtain information about the academy from G. C. Hare, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

les actualités dentaires

Fluoration

UN QUART DE MILLION DE CITOYENS DU CANADA JOUISSENT DES BIENFAITS DE L'EAU FLUORÉE NATURELLEMENT

Près d'un quart de million de Canadiens, résidant dans 153 municipalités, consomment de l'eau qui contient naturellement du fluor dans une proportion de 0.7 par un million de parties d'eau. C'est la Ligue de santé du Canada qui vient d'effectuer ces constatations. Seulement quatre provinces, Alberta, Saskatchewan, Manitoba et Ontario, ont de l'eau qui contient du fluor à l'état naturel.

On croit qu'avec l'addition, en 1963, de 1,800,000 personnes, environ 4,000,000 de Canadiens consomment de l'eau fluorée artificiellement.

Le Corps dentaire royal canadien

RELÈVEMENT DANS LES GRADES

Le Ministère de la défense nationale vient d'annoncer la première revision générale des grades d'officier dans le Corps dentaire (Armée régulière) depuis 1955. Le nouvel effectif prévoit l'augmentation suivante: un colonel, quatre lieutenants-colonels et huit majors. Pour ne rien changer au nombre total d'officiers déjà autorisé, il a fallu enlever treize capitaines de l'effectif. Les officiers suivants ont été promus à l'occasion de ce changement:

Le lieut.-col. R. B. Jackson, originaire de Winnipeg (Man.), qui commande actuellement la 14e Compagnie dentaire, dont le quartier général se trouve à Winnipeg, a été promu au grade de colonel intérimaire.

Voici le nom des officiers qui sont devenus lieutenants-colonels intérimaires: Maj. J.-A. Lauzière, Assiniboine (Sask.), affecté à la Base aérienne de l'A.R.C. à Uplands; Maj. D. H. Protheroe, Gadsby (Alb.), affecté à l'Ecole du Corps dentaire du Camp Borden (Ont.); Maj. F. D. Charman, Wallace (N.-E.), stationné à Zweibrücken (Allemagne); Maj. H. R. Kettyls, Hanna (Alb.), affecté à la Direction des services dentaires à Ottawa; Maj. R. A. Fell, Winnipeg (Man.), affecté à la Base aérienne de l'A.R.C. à Goose-Bay (Labrador).

Pour compléter la liste, nous donnons ici le nom des capitaines qui ont été promus majors, avec le lieu de leur naissance et l'endroit de leur présente affectation: Cap. R. H. Headley, Sydney (N.-E.) — Fort McLeod, Hemer (Allemagne); Cap. V. M. McMaster, Sydney (N.-E.)—Shearwater (N.-E.); Cap. J. F. Eadon, Shafton (Angleterre) — Fort York, Soest (Allemagne); Cap. D.-R. Girard, Granby (Québec) — 6e Dépôt de réparation, Trenton (Ont.); Cap. L. A. Reynolds, Queensport (N.-E.) — Fort Beauséjour, Hemer (Allemagne); Cap. H. K. Meisner, Central Blissville (N.-B.) — Baden Soellingen (Allemagne); Cap. W. R. Collier, Salmon Arm (C.-B.) — Fort Prince of Wales, Hemer (Allemagne); Cap. J.-H. Marion, Marionville (Ont.) — Metz (France); Cap. B.-A. Gaudet, Nicholas (I.-P.-E.) — Vancouver (C.-B.); Cap. J.-O.-L. Bourget, Valleyfield (Québec) — Zweibrücken (Allemagne); Cap. J.-J.-Y. Turcotte, Mont-Joli (Québec) — Grostenquin (France); Cap. J.-L.-Y. Cyrenne, Saint-Wenceslas (Québec) — Moyen-Orient; Cap. J.-F. Bégin, Montréal (Québec) — Goose-Bay (Labrador).

LE CAPITAINE ROCHEFORT À CHYPRE

Une sous-section dentaire, composée du capitaine J.-M.-L. Rochefort, de Saint-Fidèle (Québec), d'un auxiliaire dentaire et d'un technicien de laboratoire, a été envoyée à Chypre au début du printemps pour faire partie du contingent que le Canada a fourni aux Nations-Unies. Le capitaine Rochefort, dont l'affectation est pour une période indéfinie, est donc le premier officier dentiste canadien à servir avec les Nations-Unies, à Chypre; vingt-et-un de ses confrères servent ladéjà en dehors du Canada. En effet, on en

trouve en Allemagne occidentale, en France et au Moyen-Orient.

NOUVELLE UNITÉ DENTAIRE DE L'ARMÉE RÉGULIÈRE

Le 1er avril dernier, on a formé le 1er détachement dentaire à l'aide des cinq cliniques dentaires de la région d'Ottawa qui faisaient auparavant partie de la 13e Compagnie dentaire de Trenton. Le lieut-col. J. C. Brick de Windsor (Ont.), qui occupait le poste de principal clinicien de la région d'Ottawa, a été nommé commandant de la nouvelle unité.

ÉCHANGE D'OFFICIERS

Après plusieurs mois de négociations, on vient d'annoncer qu'il y aura cet été un échange d'officiers entre le Corps dentaire royal canadien et le Corps dentaire de l'Armée américaine. Le maj. P. S. Sills, officier canadien qui enseigne présentement à l'Ecole du Corps dentaire, a été désigné pour aller faire partie du personnel du Walter Reed Medical Center, de Washington, pendant deux ans, alors que le major américain D. H. Newell de Springfield (Illinois) viendra le remplacer au Camp Borden.

INSPECTION DES UNITÉS DENTAIRES DE LA MILICE

Le lt-col. G. C. Evans vient de terminer, dans tout le Canada, l'inspection des unités de Milice du Corps dentaire qui prennent part au concours de compétence générale. On annoncera plus tard, au cours de l'été, le nom des gagnants des différents trophées.

PARTICIPATION DU CORPS DENTAIRE AU CONGRÈS DENTAIRE DE L'ONTARIO

A titre de représentant du directeur général des Services dentaires, le col. A. C. Leman a assisté au 97e congrès annuel de l'Association dentaire d'Ontario. A cette occasion, le maj. P. S. Sills a présenté une excellente clinique sur les problèmes postopératoires particuliers aux dentiers complets.

FORMATION PROFESSIONNELLE

La liste ci-après des cours de courte durée que des officiers dentistes ont suivis pendant les quelques derniers mois indique bien l'importance qu'on accorde aux cours de perfectionnement:

U. S. Naval Dental School, Bethesda (Maryland): Cap. P. P. Morin, Prothèse complète, 10-14 février 1964; Cap. B. G. Johnston, Couronnes et ponts, 6-10 avril 1964.

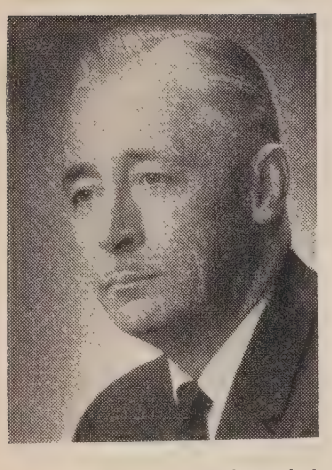
University of Michigan, Ann Arbor (Mich.): Major J. M. A. Donely, Couronnes et ponts, 2-13 mars 1964; Lt-col. W. W. Anglin, Chirurgie buccale, 30 mars-10 avril 1964.

Université de Toronto: Lt-col. R. E. Brown, Endodontie, 19-21 février 1964; Lt-col. G. E. Windsor, Corrections de malocclusion, 4-8 mai 1964.

LE MAJOR GRANT À LA RETRAITE

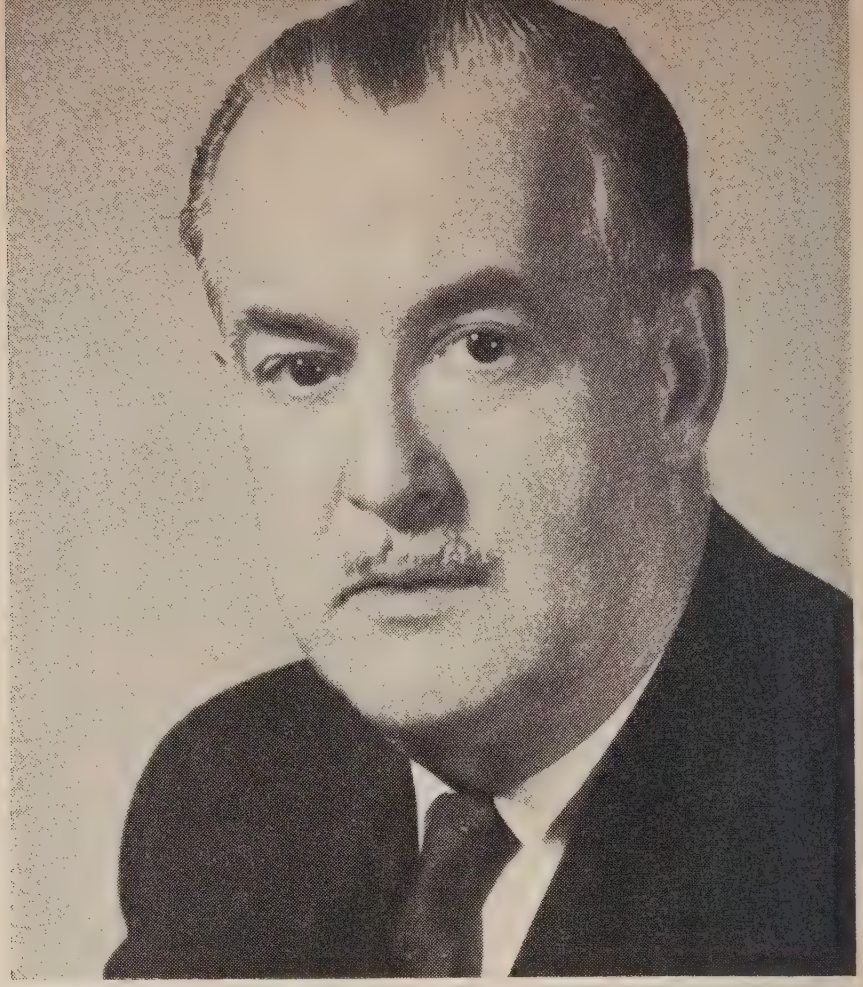
Après une carrière militaire qui a débuté en 1941, le major C. G. B. Grant, de Durham (Ont.), vient de quitter le Corps dentaire. En qualité de civil, le major Grant va continuer à travailler pour le Corps dentaire comme officier dentiste sous le régime de la Partie V. Il sera affecté à la Base aérienne de l'A.R.C. à Uplands, Ottawa.

Profitez du plan d'épargne-retraite de l'Association dentaire canadienne pour parer à l'inflation et pour vous créer un fonds garanti de pension. Vos cotisations, déductibles de l'impôt, peuvent, à votre choix, acheter des débentures du gouvernement, des débentures de corporations ou des parts communes. Vous pouvez, à l'âge de votre retraite, convertir vos placements en des rentes de votre choix. Si vous désirez d'autres renseignements, les Plans d'assurance et de retraite de l'A.D.C., 2249 rue Yonge, Toronto 7, Ontario, seront heureux de vous les fournir.



Rémy Langlois
President (right)

P. S. Christie
President-elect (above)



dentistry in the news

Langlois installed as president at Edmonton convention

On Monday June 29, dentists and their guests from all parts of Canada gathered at the Sixty-Third Annual Meeting of the Canadian Dental Association in Edmonton. A comprehensive scientific program, embracing panel discussions, essays, closed circuit television clinics, projected clinics, table clinics, motion pictures, scientific and technical exhibits, presented the latest information available on all aspects of dentistry. The annual meeting of the Board of Governors, held from June 24-27, preceded the convention. The members of the Board, in considering the nation's dental health problems, set policies for the Association for the coming year.

Rémy Langlois of Quebec City was installed as forty-fourth president of the Canadian Dental Association at the noon luncheon, June 29. He succeeds James Zimmerman of Calgary. Past president, Gustave Ratté, also of Quebec City, officiated at the installation.

Born in Quebec City, Dr. Langlois attended the Petit Seminaire de Québec and Université Laval where he earned a bachelor of arts degree. Following graduation from the Faculty of Dentistry of McGill University, Montreal, in 1932, Dr. Langlois returned to Quebec where he established his practice. He is chief of the dental departments at Quebec's Hôtel-Dieu and St-Michel Archange Hospitals. A past president of Quebec City's Société de Stomatologie and of the College of Dental Surgeons of the Province of Quebec, Dr. Langlois has served on the Canadian Dental Association's Board of Governors since 1956 and on the Executive Council since 1957. He is a fellow of the International College of Dentists.

P. S. Christie of Halifax was named president-elect of the Association. A member of the Executive Council, Dr. Christie has also been a member of the Board of Governors, representing the Nova Scotia Dental Association.

Named as members of the Executive Council were J. P. Coupland of Ottawa, W. J. Riley of Winnipeg, W. P. Munsie of Vancouver, and J. M. Chamard of Montreal.

Elected as chairmen of councils and committees were Rémy Langlois of Quebec City, Executive Council; H. M. Cline of Vancouver, Council on Constitution and Bylaws; James McCutcheon of Montreal, Council on Education; J. P. McGuigan of Halifax, Council on Ethics; J. D. Purves of Toronto, Council on Journalism; A. H. Crowson of Ottawa, Council on Legislation; A. R. S. Gray of Calgary, Council on Public Health; K. J. Paynter of Toronto, Council on Research; H. R. MacLean of Edmonton, Auxiliary Services Committee; Louis Bernier of Quebec City, 1965 Convention Committee; R. A. Clappison of Toronto, Dental Services Committee; R. P. Lowery of Toronto, Headquarters Property Committee; A. A. Antoni of Toronto, Hospital Services Committee; F. H. Compton of Toronto, Necrology Committee; P. S. Christie of Halifax, Nominations Committee; M. A. Rogers of Montreal, Specialists and Specialization Committee; and G. Baril of Montreal, War Memorial Awards Committee.

Honorary memberships in the Canadian Dental Association were conferred on Association Secretary Don W. Gullett who retires at the end of this year, and on W. Scott Hamilton, former dean of the Faculty of Dentistry, University of Alberta.

Official international representatives were T. G. Ward from the British Dental Association and Harold Hillenbrand, secretary of the American Dental Association.

Local arrangements were made by Edmonton dentists acting under the direction of W. R. Stuart, convention chairman.

BOARD OF GOVERNORS ACTIONS

At the opening session members of the Board of Governors and others in attendance rose for one minute of silence in tribute to Association members who died during the past year.

Secretary Don W. Gullett then delivered a brief factual statement concerning the subject matter covered by the report of the Royal Commission on Health Services.

The Board considered reports submitted by each of the Association's bureaux, committees and councils and took the indicated action in the following matters:

Approved a statement issued to the press by the Executive Council relative to the report of the Royal Commission on Health Services, and authorized the Executive Council to establish a steering committee to give detailed study to the report.

The Board also:

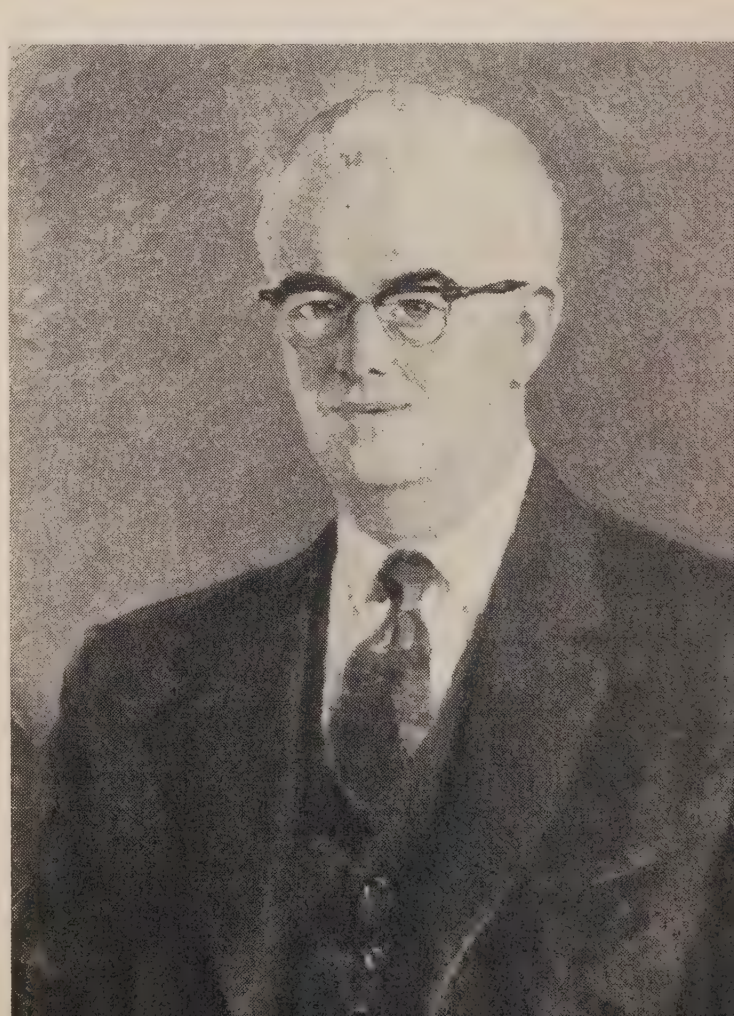
Approved the treasurer's report and adopted a budget in excess of $307,000 for 1965;

Re-affirmed the prohibition against exhibiting carbonated beverages at C.D.A. conventions;

Adopted policy statements on 'carbohydrates and dental caries' and 'fluoride supplements;'

Approved the conduct of a dental research workshop and conference in the fall of 1964;

Allocated $13,000 to the Council on Research in support of fellowships, studentships and related activities in 1965; and reaffirmed the Association's support for fluoridation of community water supplies.



Noted Canadian artist Frederic Steiger of Toronto painted the portrait of Don W. Gullett which appears right. A resident of Canada since 1922, Mr. Steiger's work ranges from Prairie and Newfoundland landscapes to portraits of leading Canadian personalities. Among his better known portraits are those of Premier J. R. Smallwood of Newfoundland and Lt.-Col. J. Keiller MacKay, former Lieutenant-Governor of Ontario.

In other actions the Board also:

Approved the principle of holding a conference of public information representatives of regional dental organizations;

Extended greetings and good wishes to President J. B. MacDonald and Dean S. Wah Leung on the occasion of the enrolment of the first dental undergraduate class at the University of British Columbia;

Reiterated the need for establishing provincial fee schedules;

Approved development of a standardized nomenclature for dental operations and development of a uniform examination chart;

Authorized agreements with the Department of Veterans' Affairs based on provincial dental fee schedules;

Congratulated D. M. Tanner, R. A. Connor and C. A. E. McCabe on their recent appointments to positions in the Departments of Veterans' Affairs and National Health and Welfare;

Extended appreciation to L. A. Kilburn and H. K. Brown on the occasion of their retirement from employment by the federal government;

Authorized conferences on dental assistants' training and dental hygiene course directors;

Received a final report on aptitude testing from the Council on Education;

Confirmed the appointment of G. T. Mitton of Toronto as chairman of the National Recruitment Committee;

Approved the conduct of a dental teacher training conference in 1965 on the subject of prosthodontics;

Received a report from the Canadian Fund for Dental Education, and allocated a further grant to the fund from the 1964 budget;

Asked the Executive Council to review policy governing invitations to the annual meeting that are extended to officials of foreign dental organizations;

Confirmed the commissioning of Don W. Gullett to write a history of dentistry in Canada;

Asked the Executive Council to reconsider the problem of discrimination against oral surgeons by physician-sponsored prepayment plans and commercial health insurance plans, and recommended that this problem be discussed with representatives of the Canadian Medical Association, Trans-Canada Medical Plans and the Canadian Health Insurance Association;

Allocated $1,000 to the Canadian Science Fairs Council;

Referred an application for paedodontic specialty recognition to the Specialists and Specialization Committee and Section on Dentistry for Children;

Heard progress reports on formal training programs for dental assistants at Vancouver, Edmonton and Toronto;

Gave conditional approval to a study of dental public health in Canada;

Reaffirmed support for equivalent remuneration of physicians and dentists and for professional autonomy of senior dental officers in government services, and instructed the Executive Council to convey these principles to appropriate federal government departments and to corporate members of the Association;

Requested that the Executive Council communicate with the Minister of National Health and Welfare and recommend establishment of a dental grant under the National Health Grants;

Urged provincial dental organizations to establish hospital services committees;

Approved and encouraged the conduct of short courses in hospital dentistry, and recommended to the Council on Education that a forthcoming teacher training conference be devoted to this subject;

Approved continued liaison between the Hospital Services Committee and the Canadian Council on Hospital Accreditation;

Adopted a new policy statement on health insurance;

Approved in principle a relative value method of fee determination;

Adopted an official reference list of dental services;

Received a progress report on the Association's headquarters staff dental care plan, and directed that this plan be continued for a further year.

The Board also:

Directed the Dental Services Committee to pursue studies on orthodontic services in dental prepayment plans;

Urged the Executive Council to review the possibility of establishing a bureau of legal affairs at Association headquarters;

Approved revisions to the Code of Ethics;

Authorized expansion of the *Journal of the Canadian Dental Association,* integration of English and French Journal content, and the possible conduct of a reader interest survey; and

Selected as title for the 1965-66 War Memorial Essay competition "Dental calculus: mechanism of its formation and its effects on oral health."

Although the Dental Services Committee earlier this year intended to re-submit a proposal concerning the pro-ration factor in prepayment plans, this committee subsequently decided otherwise. Therefore this item did not appear on the agenda of the Board of Governors meeting.

EXECUTIVE COUNCIL ACTIONS

The Executive Council met twice in Edmonton — immediately preceding and im-

mediately after the Board of Governors' sessions.

The council:

Issued a press statement concerning the report of the Royal Commission on Health Services;

Re-appointed C. H. M. Williams as representative of the Association to the National Cancer Institute of Canada;

Named D. W. Gullett, Rémy Langlois and W. G. McIntosh as official C.D.A. delegates to the forthcoming annual session of the Fédération Dentaire Internationale to be held in San Francisco in November;

Met with representatives of three specialty sections (orthodontics, periodontics and dentistry for children); and

Approved the appointment of a three-member steering committee to conduct a detailed study of the report of the Royal Commission on Health Services.

RESOLUTIONS AND RECOMMENDATIONS

On resolutions submitted by corporate members and sections the Board of Governors took the following action:

A resolution requesting that the board consult with the Canadian Society of Orthodontists on policy matters affecting orthodontic services resulted in reassurance that this would be done;

A resolution from the Montreal Dental Club recommending (1) that C.D.A. committee members be re-appointed only once, (2) and thereafter retire for one two-year term before becoming eligible for further re-appointment to another committee, (3) and prohibiting simultaneous service on two committees resulted in concurrence with recommendation (1) which is in accord with the existing by-laws, rejection of recommendation (2), and indication that recommendation (3) conforms to current practice;

A resolution from the College of Dental Surgeons of Saskatchewan urging establishment of an earmarked national health grant for dental health was approved; the Board of Governors directed the Executive Council to communicate with the Minister of National Health and Welfare and recommend establishment of such a grant under the National Health Grants;

A resolution from the Royal College of Dental Surgeons of Ontario recommending extension of the accreditation program for dental schools on a world-wide basis was referred to the Council on Education;

A resolution from the Alberta Dental Association requesting that paedodontics be granted specialty recognition by the Canadian Dental Association was referred to the Specialists and Specialization Committee for further consideration in consultation with the Section on Dentistry for Children;

A request from the Ontario Dental Association concerning specialty recognition for endodontics was referred back to the Ontario Dental Association so that the request may be presented by an organized group of endodontists to the Specialists and Specialization Committee.

The Board also adopted additional resolutions that give:

Conditional approval for a study of dental public health in Canada; and

Approval of the Canadian smoking and health program of the Department of National Health and Welfare.

Other recommendations and resolutions adopted by the Board state that:

The Association opposes (1) the enactment of any provisions within legislation for medical services plans which deny the unencumbered right of a patient to select the legally qualified practitioner of his choice, and (2) the enactment of any provisions within legislation for medical services plans which permit public funds to be employed in a manner which discriminates against the lawful services of dentists.

PRESIDENTIAL ADDRESS

The report of the Royal Commission on Health Services was labelled as 'the single most important item of business at the Board of Governors' meeting' by C.D.A. President James Zimmerman when he delivered the annual presidential address, June 29. Because the report was received two days before the board meeting its contents were only briefly reported to the Board and a special steering committee appointed to make a careful analysis of its content, Dr. Zimmerman explained.

Reporting on business transacted by the Board of Governors, Dr. Zimmerman called for continued effort in support of fluoridation. He explained that "Almost four million Canadians now live in communities with fluoridated water. But . . . there are 15 million Canadians who do not have the benefits of fluoridation."

Dr. Zimmerman also introduced Secretary-designate W. G. McIntosh, Toronto, who will succeed Secretary Don W. Gullett when the latter retires at the end of this year.

Dr. Zimmerman concluded his remarks by unveiling a portrait of Dr. Gullett which he presented to Dr. Gullett on behalf of the members of the Canadian Dental Association as a token of their "deep affection . . . and appreciation . . . for our worthy secretary."

NATIONAL CONVENTION HIGHLIGHTS

The national convention program opened with a delightful musicale and art exhibit on Sunday evening, June 28.

The principal essayist on Monday morning was R. W. Phillips of Indianapolis. Retiring C.D.A. president James Zimmerman was the speaker at the Canadian Dental Association luncheon on Monday noon. The two essayists on Monday afternoon were American Dental Association secretary Harold Hillenbrand and C. H. Moses of Toronto. Presentations on various aspects of dental research were also featured that afternoon, the participants being J.-P. Lussier of Montreal, K. J. Paynter of Toronto and I. Kleinberg of Winnipeg.

T. M. Graber of Kenilworth, Illinois, delivered the George Wellington Grieve Memorial Lecture on Tuesday morning. Essayists T. G. Ward of London, England, and C. H. Moses of Toronto also gave presentations that morning.

The panel discussion on the report of the Royal Commission on Health Services was held on Tuesday afternoon. Panel participants included B. A. McFarlane of Ottawa, who served as a consultant to the commission, and C. D. A. secretary-designate W. G. McIntosh of Toronto.

Further presentations on dental research were given by G. J. Parfitt of Vancouver and R. V. Blackmore of Edmonton following the panel presentation. Other group clinicians included G. L. Locke and A. D. Sparrow of Calgary.

On Wednesday morning, essayists Terence Ward and R. W. Phillips gave further clinical presentations. They were followed by W. Zacherl of Edmonton and by an 'audience meets the essayist' discussion panel with Doctors Phillips, Moses and Ward as participants.

A television clinic program was presented on Wednesday afternoon at the Faculty of Dentistry of the University of Alberta. Subjects included were paedodontics, orthodontics, operative dentistry, diagnosis, exfoliative cytology, and services rendered by the dental hygienist.

The numerous table clinics on Monday and Tuesday mornings covered orthodontics, prosthodontics, operative dentistry, crown and bridge prosthodontics, paedodontics, surgery, practice management, endodontics, photography in dentistry, radiology, periodontics, dental public health, and dental hygiene.

Premier E. C. Manning of Alberta was the speaker at the provincial government luncheon on Tuesday. The city of Edmonton luncheon on Wednesday was addressed by Mayor William Hawrelak.

A.D.A. SECRETARY PRAISES PREPAID CARE PLANNING

The Canadian Dental Association, by adopting policy statements on establishment of provincial dental services corporations, has laid the groundwork for developing prepayment dental care, American Dental Association Secretary Harold Hillenbrand told delegates to the Canadian Dental Association national convention in Edmonton, June 29. He praised Canadian dentists for taking the initiative for providing prepaid dental care.

"There is no doubt in my mind that prepaid dental care, a relative newcomer to the field of health services, is destined for rapid growth within the next decade," Dr. Hillenbrand noted.

Commending the C.D.A. for its efforts to initiate prepayment care programs, Dr. Hillenbrand remarked that three provinces—Alberta, Nova Scotia and British Columbia—have approved enabling legislation for dental service corporations.

"The British Columbia Dental Services Association recently engaged an administrator and is now negotiating its first contract," he added.

Dr. Hillenbrand pointed out that at last year's joint meeting of the executive boards of the C.D.A. and A.D.A. in Chicago, prepaid dental care was one of the major subjects considered. This was the second joint meeting in the history of the two organizations and he expressed hope for similar meetings in the future to "further cement our bonds of mutual friendship and respect."

Turning to the status of prepaid dental care in the United States, Dr. Hillenbrand said that currently more than one and a half million people are covered. Twenty-two state dental societies have established dental service corporations; nine of them have operating programs.

To assist dental service corporations, particularly those with national coverage, the A.D.A. is studying the need for an independent national co-ordinating agency.

"As more and more national groups, particularly labour unions, become interested in dental plans, the need for an overall coordinating agency has become increasingly apparent," he said.

California Dental Service (Corporation) leads in enrolment by providing coverage for more than half a million persons in more than 30 groups, he stated. Additionally, 16 commercial insurance companies are successfully marketing some 45 prepayment dental plans in the United States, Dr. Hillenbrand said.

The full text of Dr. Hillenbrand's address will be published in a subsequent issue of the Journal.

PREMIER MANNING APPLAUDS AND CRITICIZES ROYAL COMMISSION

The Royal Commission on Health Services came under fire from Premier E. C. Manning of Alberta at the national convention of the Canadian Dental Association. The premier told delegates that implementation of the commission's recommendations would mean a complete "welfare set-up in Canada."

He said he agreed with the objective of establishing a comprehensive health services program available to all Canadians but the interpretation of these objectives and the conclusions reached by the commission were "open to question and challenge."

Mr. Manning told delegates that placing responsibility for health services 100 per cent on the shoulders of government "strikes at the heart of free society and independent responsibility."

"It is a responsibility of the modern state to bring health services within the reach of all citizens, but that is where state responsibility ends," the premier declared. "You can't have freedom without individual responsibility, and this includes financial responsibility," he added.

Federal, provincial and local government expenditures exceeded revenue by $1,350 million last year. We should keep this in mind when we ask the state to take over health services, Mr. Manning pointed out.

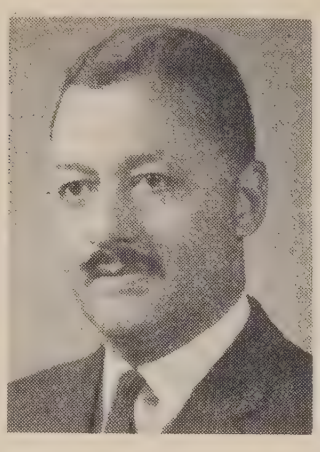
He questioned the wisdom of isolating one particular area, such as health services, and then claiming that we can afford this service. "What about education, welfare and universal pensions? Maybe we can afford to finance any one or two of these, but can we afford them all simultaneously," the premier asked.

"Let us make it clear that the objectives of the Royal Commission can be obtained without undermining our free society and quality of services and without the burden of increased taxation," said Mr. Manning.

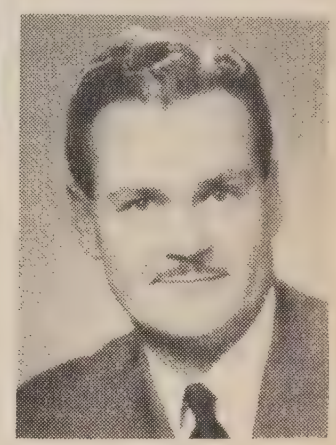
SOCIOLOGIST PREDICTS VAST CHANGES IN DENTISTRY

Most of the dental recommendations of the Royal Commission on Health Services resulted from an apparent inability of the dental profession to solve current problems, a prominent sociologist told dentists attending the C.D.A. national convention, June 30.

B. A. McFarlane, panelist on the convention program, was commenting on the commission report. Dr. McFarlane is assistant professor of sociology at Carleton University, Ottawa. He also served as a research consultant to the commission.



B. A. McFarlane



W. G. McIntosh

Calling for a re-definition of the role of the dental profession, Dr. McFarlane declared that the style of dental practice will be different if the commission's recommendations are accepted. He predicted greater interdependence between practitioners, specialists and paradental personnel.

"The concept of the dental team working in clinics or hospitals is implicit in the recommendations of the Royal Commission," he explained. As dentistry moves into the hospital setting practitioners will become subject to closer scrutiny by other professions and hospital administrators. The new children's dental program will also call for new diagnostic, consultant and supervisory skills on the part of dentists, he added.

The role of the dentist will probably change even if the commission's recommendations are not adopted, and the idea of the dental team will become more common, Dr. McFarlane pointed out. "Dental practice will in future no longer be confined to the shopping plaza," he declared. The real question is whether these changes are to be deliberate, planned and guided, or whether they are to occur in haphazard fashion under an emotionally charged atmosphere and in response to crises.

"As people become educated to the importance of health services, more of them will demand these services as a right and more of them will have to be served. And greater demand for health services makes increasingly centralized control inevitable," Dr. McFarlane added.

SOME COMMISSION PROPOSALS CONFLICT WITH C.D.A. POLICY

There are many areas of agreement between the Royal Commission on Health Services and the C.D.A. but some of the commission's proposals differ greatly from those of the profession, W. G. McIntosh, Toronto, told dentists attending the national convention in Edmonton, June 30.

Dr. McIntosh said a comparison of commission recommendations dealing with dentistry and proposals made by the C.D.A. is "somewhat disconcerting." The profession disagrees that the highest possible health standards can best be achieved through a comprehensive, universal health program paid for by the state. The C.D.A. recommends dental service corporations to handle health insurance while the commission calls for government financing of dental care, he said.

Dr. McIntosh also cited the following examples of areas of conflict:

Universal all-inclusive comprehensive dental treatment for children;

Inadequate emphasis on concurrent health education;

Treatment by salaried personnel in clinics rather than by private practitioners through fee-for-service;

Possible training of dental auxiliaries in technical institutes rather than in dental schools; and

Acquisition by dental auxiliaries of scientific knowledge and skills for which the profession considers a two-year training program inadequate.

Dr. McIntosh also drew attention to two features of the report which cause concern to dentists: some apparent instances of discrimination between physicians and dentists, and the omission of dentists from recommendations concerning drugs.

Bearing in mind that the report advocates comprehensive treatment service available to all, medical benefits—if rendered by dentists—will nevertheless be confined to maxillo-facial services when these are rendered by a dentist in association with physicians, Dr. McIntosh explained.

He was also critical of the omission of dentists from the proposed Drug Advisory Committee of the Department of National Health and Welfare and from the list of prospective recipients of proposed drug information bulletins.

Dr. McIntosh called upon each corporate member of the C.D.A. to establish a committee to study the report of the Royal Commission and to be prepared to act in a dental advisory capacity to planning committees that are to be established by provincial governments.

Canada and the Provinces

WINDSOR DENTIST SAVES CHILD'S LIFE

Windsor dentist A. J. Wilson and a student nurse are credited with saving the life of an unconscious five-year-old girl who fell into a swimming pool at an apartment building under construction. The accident occurred on May 19.

Dr. Wilson applied external heart massage, and Miss Ursula Woodward applied mouth-to-mouth resuscitation after the child was pulled from the swimming pool. She had lain on the bottom of the pool for nearly four minutes.

Dr. Wilson and Miss Woodward attended the girl until she began to breathe again. Dr. Wilson then accompanied the child to Hotel Dieu Hospital in an ambulance.

International Items

DENTAL SCHOOL FOR ISRAEL

The new $2 million Hebrew University-Hadassah School of Dentistry in Jerusalem was dedicated August 11-13. The school, constructed with funds contributed by the Alpha Omega fraternity, will be a major dental training centre in the Middle East.

AAAS MEETS IN MONTREAL THIS DECEMBER

The American Association for the Advancement of Science will meet in Montreal, December 26-31. Virtually all sessions of the association's 20 sections (including the section on dentistry) will be held in Montreal's downtown hotels. The Queen Elizabeth Hotel will be the headquarters of the AAAS exposition and related evening events.

The introductory session of the dental section will cover geographic and clinical considerations in the causation of oral diseases. This will be followed by specific theme subjects which consider the oral environment in relation to pathogenesis of dental caries, periodontal and related soft tissue diseases of the mouth, and in utero influences of foetal development.

Details of the program may be obtained from the secretary of the Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario. All other information should be obtained from R. L. Taylor, associate administrative secretary, American Association for the Advancement of Science, 1515 Massachusetts Avenue, N.W., Washington 5, D.C., U.S.A.

CANADIANS INVITED TO HAWAII DENTAL MEETING

Canadian dentists are invited to attend the Hawaii State Dental Association's 62nd annual meeting in Honolulu, Hawaii, November 14-19, following the annual sessions of the American Dental Association and the Fédération Dentaire Internationale in San Francisco. This year's meeting, known as the Pan-Pacific Dental Conference, will be held at the Princess Kaiulani Hotel. Travel arrangements may be made through E. F. MacDonald Travel Service, 133 Montgomery Street, San Francisco 4, California. Further information may be obtained from the Hawaii State Dental Association, P. O. Box 2198, Honolulu, Hawaii 96805.

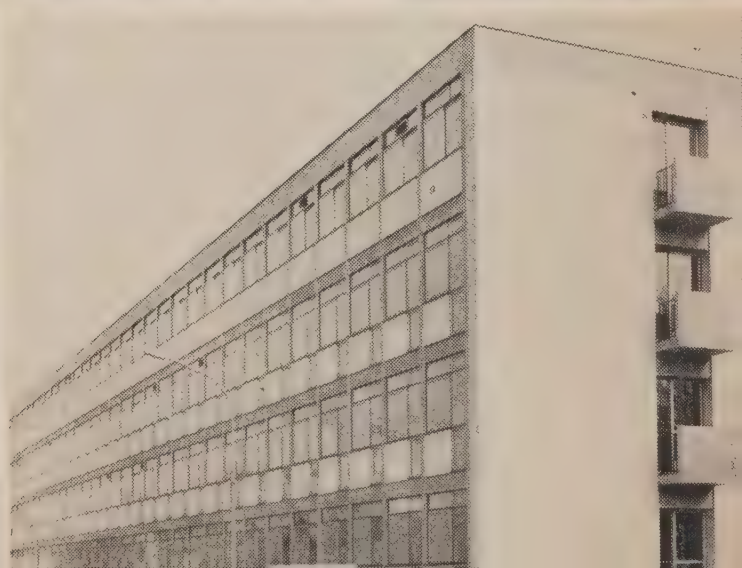
NEW STOMATOLOGY INSTITUTE OPENED IN PARIS

Dental education in France received a welcome boost with the opening, late last year, of the new Salpêtrière Stomatological Institute in Paris. Affiliated with the Paris University Faculty of Medicine, this ultra-modern dental centre is designed to provide specialty training for French and foreign dentists and dental training for medical students. A wide range of out-patient and in-patient treatment services will be offered to the public. The institute will also have up-to-date research laboratories, and a library and an international documentation centre are to be installed.

The entire complex, begun at the end of 1960, will ultimately comprise the five-storey institute, a separate five-storey hospital clinic now under construction, and an additional separate surgical operating room wing yet to be built. When completed, the buildings will be sited in an attractively landscaped area and provided with adequate parking facilities. Construction was supported by French public health authorities.

ORAL PATHOLOGISTS TO MEET IN LAS VEGAS

The 1965 annual meeting and seminar of the American Academy of Oral Pathology will be



A recent addition to French dental education facilities is the new Salpêtrière Stomatological Institute in Paris. (1) The technique laboratory on the lower ground floor accommodates 56 students. (2) Dental treatment cubicles on the first floor. (3) Exterior view of the institute.

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Seen at the annual convocation of the Canadian Section, International College of Dentists, held in Edmonton, June 27, are (rear l. to r.) Col. I. A. L. Millar, Aylmer East, P. Quebec; A. C. Steeves, Calgary; K. M. Kerr, Halifax; Harry Rosen and E. R. Ambrose, Montreal; L. K. Brooks, Calgary; Col. B. P. Kearney, Edmonton; (front l. to r.) D. C. Steeves, Moncton; J. B. Rumberg, Winnipeg; R. A. Connor, Ottawa; J. P. Whyte of Swift Current, Saskatchewan, installing officer; W. Scott Hamilton, Edmonton; James Zimmerman, Calgary; and R. M. LeBlanc, Montreal.

held March 31 to April 3, 1965 in Las Vegas, Nevada. Canadian dentists have been invited to attend. Further information may be obtained from S. M. Standish, Indiana University School of Dentistry, Indianapolis, Indiana 46202, U.S.A.

Dental Organizations

CANADIAN SECTION, INTERNATIONAL COLLEGE OF DENTISTS MEETS

Thirteen dentists were inducted as fellows of the International College of Dentists at the annual meeting and convocation of the Canadian Section of the college in Edmonton, June 27. The new fellows are: L. K. Brooks, A. C. Steeves and James Zimmerman of Calgary; B. P. Kearney and W. Scott Hamilton of Edmonton; J. B. Rumberg of Winnipeg; R. A. Connor of Ottawa; E. R. Ambrose, R. M. LeBlanc and Harry Rosen of Montreal; I. A. L. Millar of Aylmer East, P. Quebec; D. C. Steeves of Moncton; and K. M. Kerr of Bedford, Nova Scotia.

J. W. Clay of Calgary was honoured with a master's degree in the college for outstanding contributions to the dental profession.

The Board of Regents elected as president Gustave Ratté of Quebec City. Also named as officers were H. R. MacLean of Edmonton, past president; J. P. McGuigan of Halifax, president-elect; D. G. Tanner of Ottawa, vice president; E. A. White of Toronto, registrar; and H. R. Skilling of Toronto, treasurer.

B. M. PLUMB HEADS VANCOUVER DENTISTS

B. M. Plumb was chosen president of the Vancouver and District Dental Society at the final meeting of the 1963-64 season. Other officers are J. A. Folkins, president-elect; R. K. Lindsay, past president; C. R. Braaten, secretary; D. A. Sinclair, treasurer; T. A. Cacchioni, E. I. Slakov, J. I. Johnston and T. E. Ramage, directors.

B.C. DENTISTS DISCIPLINED

According to a recent amendment to the Dentistry Act of British Columbia, any dentist who performs substandard services may be required to be re-examined and may be suspended from practice.

The Council of the College requested one member to appear in June to be re-examined during the clinical section of the B.C. Board examinations. Another dentist was advised to join a prosthodontic study club for further study on account of complaints about his work.

A court of enquiry was held into charges of unprofessional conduct of a dentist who was found guilty of collaborating with a dental mechanic in the extraction of teeth and the fitting and adjusting of a prosthetic appliance.

NIAGARA DENTISTS ELECT

Murray Wertman of St. Catharines, Ontario, was recently elected president of the Niagara Peninsula Dental Association. Other officers are G. R. Goodine of St. Catharines, vice-president; Z. A. Janvary of Niagara Falls, treasurer; G. K. Chapman of Fort Erie, historian; and Carl Osadetz of St.

Catharines, secretary. Named as directors were W. R. Clark of Welland, J. N. Wills of Niagara Falls and L. Glenn Bannister of Niagara-on-the-Lake.

WINDSOR DENTISTS ELECT FURLONG

F. J. Furlong of Windsor, Ontario, has been elected president of the Essex County Dental Society. Named with Dr. Furlong as officers for 1964-65 were A. W. Lampe of Windsor, vice-president; E. J. Paslawsky of Leamington, treasurer and E. H. Mazak of Windsor, secretary.

MONTREAL DENTISTS OPPOSE GOVERNMENT INTERVENTION

The following statement has been submitted to the Journal by the Montreal Dental Club:

> A recent survey was conducted by the dental societies of the City of Montreal on the desirability of any kind of government control of dentistry. Of 610 replies, only 45 desired any government interference whatsoever.
>
> The results of this survey contrast greatly with the reported results of a survey at the Canadian Dental Association convention in Montreal in 1959. It has been stated recently in Montreal by a C.D.A. official that 60 per cent of the dentists polled at that time favoured government intervention.

FREDERICTON DENTISTS MEET

Members of the Fredericton Dental Society and their wives recently held a champagne and lobster dinner to mark the final meeting of the 1963-64 season. Guest speaker was Douglas Johnsson, New Brunswick's chief architect.

Reappointed officers for the coming year are G. G. Orser, president; K. A. Hetherington, vice-president; and E. H. Sutherland, secretary-treasurer.

FRASER IS PRESIDENT OF NOVA SCOTIA ASSOCIATION

J. R. Fraser of Chester, Nova Scotia, was installed as president of the Nova Scotia Dental Association at the 74th annual meeting in Halifax, June 27. He succeeds J. F. Burke of Sydney. Also elected were D. G. Pentz of Halifax, president-elect; J. E. Merritt of Halifax, vice-president; and W. H. Macneil of Halifax, secretary. N. J. Layton of Truro was elected to the executive committee.

Registrar G. M. Dewis reported a slight increase in the province's dental register during the past year. There are now 243 dentists registered compared to 238 a year ago. Seventy of these are either non-resident, with the armed services, or in institutional employment such as the DVA Hospital, provincial health department, or university faculty. Only 173 dentists actually practised in Nova Scotia on May 31.

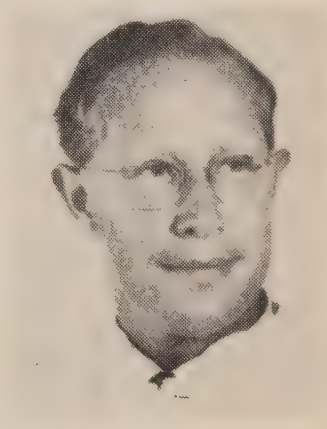
Dean J. D. McLean in a report concerning the Faculty of Dentistry at Dalhousie University, stressed the importance of expanding teaching facilities from the present class size of 25 students to an approximate maximum of 60 students.

Fluoridation began at Antigonish during the past year, reported W. G. Dawson, director of the provincial division of dental health, making this the sixth Nova Scotia community to adopt this important public health measure. Nova Scotians now living in fluoridated communities total 208,650. This represents approximately 61 per cent of the population who live in centres with a public water supply. Forty-six per cent of all Nova Scotians live in areas with a public water supply. Fluoridation is expected to commence in the two armed services installations, R.C.A.F. Station Greenwood and H.M.C.S. Cornwallis, this year.

Canadian Dental Schools

PINDBORG WILL DELIVER THIRD ANNUAL BOX MEMORIAL LECTURE

Professor J. J. Pindborg of the Department of Oral Histopathology, Royal Dental College, Copenhagen, Denmark, and former World Health Organization Visiting Professor, will deliver the third annual Harold



J. J. Pindborg

Keith Box Memorial Lecture at 8.15 p.m. on Monday, October 26 in the auditorium of the Faculty of Dentistry, University of Toronto. A world authority on lesions of the oral mucosa, Professor Pindborg's subject will be 'Oral cancer from an international point of view.'

On Tuesday, October 27, Professor Pindborg will present a one-day refresher course on 'Periodontal changes in systemic disease.' Further information regarding this course may be obtained from the Chairman of Graduate and Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

Royal Canadian Dental Corps

BRIG. BAIRD ATTENDS C.D.A. NATIONAL CONVENTION

Brig. K. M. Baird, Director General of Dental Services for the Canadian Forces, was in Edmonton, June 24-30, 1964, to participate as a member of the Board, in the annual meeting of the Board of Governors of the Canadian Dental Association. While in Edmonton he also attended the joint convention of the Canadian Dental Association and the Alberta Dental Association. Earlier in the week, Brig. Baird, accompanied by Col. B. P. Kearney, Command Dental Officer, Western Command, visited R.C.A.F. Station, Cold Lake, Alberta, to view the new dental clinic accommodation there.

Maj. A. W. Brusso, Senior Procurement Officer, visited the Medical Directorate, War Office, London, England, July 3-12, to attend the annual meeting of the Standing Working Group for the A.B.C. (American, British, Canadian) Table of Medical Equivalents.

Maj. W. H. Harrington of the Directorate Staff took part in a management training symposium at Canadian Army Staff College, Kingston, Ontario, June 17-19.

SIX CHANGES IN COMMAND ANNOUNCED

The following changes in command of Dental Units have occurred in recent months: Col. R. B. Jackson of Winnipeg, from commanding officer of No. 14 Dental Company at Winnipeg, to Command Dental Officer and commanding officer of No. 15 Dental Company at Montreal; Lt.-Col. W. W. Anglin of Sackville, New Brunswick, from senior clinician of No. 15 Dental Company to commanding officer of No. 14 Dental Company; Lt.-Col. L. G. Craigie of Kamsack, Saskatchewan, from commanding officer of No. 35 Field Dental Unit at No. 1 Air Division, R.C.A.F., Metz, France, to the Directorate of Dental Services, Ottawa; Lt.-Col. J. C. Brick of Windsor, Ontario, from commanding officer of No. 1 Dental Detachment at National Defence Headquarters to commanding officer of No. 35 Field Dental Unit; Lt.-Col. C. M. Cornish of Ingersoll, Ontario, from senior clinician of No. 13 Dental Company at Trenton, Ontario, to commanding officer of No. 1 Dental Detachment; Lt.-Col. J. G. Butler of Princeton, British Columbia, from Command Dental Officer and commanding officer of No. 15 Dental Company to senior clinician at H.M.C.S. Cornwallis, Nova Scotia.

COLS. MILLAR AND KEARNEY BECOME FELLOWS OF INTERNATIONAL COLLEGE

On June 27 Col. I. A. L. Millar, Deputy Director General of Dental Services, and Col. B. P. Kearney, Command Dental Officer, Western Command, were inducted as fellows in the International College of Dentists in appreciation of their contribution to arts and sciences, and to the general welfare of the dental profession.

LT.-COL. RICHARDSON ON LOAN TO MANITOBA U.

Lt.-Col. L. A. Richardson of Viking, Alberta, has again been temporarily assigned to the University of Manitoba for the coming academic year. Lt.-Col. Richardson served with the Faculty of Dentistry at Manitoba on a part-time basis for the past two years. He assumes his new duties in the Department of Prosthodontics in September.

MAJOR McGAUGHEY RETIRES

Maj. J. McGaughey recently retired from the Canadian Army following 18 years service.

After the Second World War, Maj. McGaughey, a native of Charlottetown, entered Dalhousie University, Halifax. He graduated in 1951 and began his service as a dental officer at H.M.C.S. Stadacona. He served subsequently at various locations in Canada, with No. 4 Canadian Infantry Brigade Group in Germany, and for the past two years at Windsor Park, Halifax.

Maj. McGaughey is married and has two children.

THIRTY-TWO POSTINGS ANNOUNCED

The following changes in location have recently taken place: Lt.-Col. D. H. Hillier from the Directorate of Dental Services, Ottawa, to Griesbach Barracks, Edmonton; Lt.-Col. F. D. Charman from No. 3 Wing, R.C.A.F. Station Zweibrücken, Germany, to R.C.A.F. Station St-Jean, P. Quebec; Lt.-Col. H. R. Kettyls from the Directorate of Dental Services to No. 12 Dental Company for employment aboard H.M.C.S. Bonaventure; Lt.-Col. R. A. Fell from R.C.A.F. Station Goose Bay, Newfoundland, to Kingston, Ontario; Maj. D. Carmichael from H.M.C.S. Dockyard, Esquimalt, British Columbia, to R.C.A.F. Station Clinton, Ontario; Maj. M. P. Quinn from H.M.C.S. Bonaventure to Headquarters, British Columbia Area, Vancouver; Maj. W. K. Dickie from Canadian Forces Hospital, Kingston, Ontario, to No. 3 Wing, R.C.A.F. Station Zweibrücken, Germany; Maj. P. E. Fafard from Churchill, Manitoba, to H.M.C.S. Dockyard, Esquimalt, British Columbia; Maj. I. A. C. MacDonald from Whitehorse, Yukon Territory, to R.C.A.F. Station Downsview, Toronto; Maj. H. G. Bunston from R.C.A.F. Station Greenwood, Nova Scotia, to R.C.A.F. Station Goose Bay, Newfoundland; Maj. L. E. Kelly from R.C.A.F. Station Comox, British Columbia, to Headquarters, British Columbia Area, Vancouver; Maj. D. H. MacPhee from No. 4 Field Dental Company, Germany, to Canadian Forces Hospital, Kingston, Ontario; Maj. R. H. Headley from No. 4 Field Dental Company, Germany, to Camp Gagetown, New Brunswick; Maj. D. R. Girard from No. 6 Repair Depot, Trenton, Ontario, to Longue Pointe, Montreal; Maj. H. K. Meisner from No. 35 Field Dental Unit to H.M.C.S. Churchill, Manitoba; Maj. B. A. Gaudet from Headquarters, British Columbia Area to No. 35 Field Dental Unit, Metz, France; Maj. J. J. Y. Turcotte from No. 35 Field Dental Unit to No. 1 Dental Detachment, Ottawa; Maj. J. F. Begin from R.C.A.F. Station Goose Bay to No. 4 Field Dental Company; Capt. H. J. Cashin from R.C.A.F. Station Moose Jaw, to R.C.A.F. Station Chatham, New Brunswick; Capt. P. P. Morin from Griesbach Barracks, Edmonton, to No. 4 Field Dental Company; Capt. E. W. Gazo from Camp Picton to No. 4 Field Dental Company; Capt. H. W. Brogan from Fort Churchill, Manitoba, to R.C.A.F. Station Greenwood, Nova Scotia; Capt. M. N. Deyette from Camp Petawawa, Ontario, to London, Ontario; Capt. G. J. B. Dionne from R.C.A.F. Station Comox, British Columbia, to R.C.A.F. Cold Lake, Alberta; Capt. J. P. A. Legendre from Currie Barracks, Calgary, to Camp Petawawa, Ontario; Capt. W. E. Russell from Camp Gagetown, New Brunswick, to R.C.A.F. Station St-Jean, P. Quebec; Capt. N. A. McFarlane from R.C.A.F. Station Cold Lake, Alberta, to No. 6 Repair Depot Trenton, Ontario; Capt. G. W. Hill from R.C.A.F. Station Cold Lake, Alberta, to No. 14 Dental Company, Winnipeg; Capt. W. R. Kyle from R.C.D.C. School, Camp Borden, Ontario, to Camp Picton, Ontario; Capt. C. M. Mason from Griesbach Barracks, Edmonton, to R.C.A.F. Station Penhold, Alberta; Capt. M. D. Taylor from R.C.A.F Station Saskatoon, to R.C.A.F. Station Moose Jaw; and Capt. L. W. Armstrong from Fort Churchill, Manitoba, to R.C.A.F. Station Gimli, Manitoba.

SIXTEEN NEW GRADUATES WELCOMED

In addition to those listed in an earlier issue of the Journal, 16 new dental officers, graduates of four Canadian universities, have received their initial posting to the following locations: Capt. C. J. M. Boston, McGill University, to No. 12 Dental Company, Halifax; Capt. R. W. Chernesky, University of Alberta, to R.C.A.F. Station Cold Lake, Alberta; Capt. G. D. V. Dippel, McGill University, to R.C.A.F. Station Goose Bay, Newfoundland; Capt. W. H. Dunnigan, University of Alberta, to No. 11 Dental Company, Edmonton; Capt. M. H. Harach, University of Alberta, to No. 14 Dental Company, Winnipeg; Capt. J. P. J. LaPorte, Université de Montréal, to Camp Valcartier, P. Quebec; Capt. M. G. McRae, University of Alberta, to R.C.A.F. Station Comox, British Columbia; Capt. R. F. C. Oswin, University of Alberta, to No. 11 Dental Company, Edmonton; Capt. D. Pigeon, Université de Montréal, to R.C.A.F. Station St-Jean, P. Quebec; Capt. G. E. Purcell, University of Alberta, to No. 11 Dental Company, Edmonton; Capt. J. R. Robertson, Dalhousie University, to No. 12 Dental Company, Halifax; Capt. G. R. Rowe, Dalhousie University, to No. 12 Dental Company, Halifax; Capt. J. O. Strom, University of Alberta, to No. 12 Dental Company, Halifax; Capt. J. W. C. Walls, University of Alberta, to R.C.A.F. Station Cold Lake, Alberta; Capt. R. E. Warren, University of Alberta, to R.C.A.F. Station Clinton, Ontario; and Capt. B. H. Weeks, Dalhousie University, to No. 1 Dental Detachment, National Defence Headquarters, Ottawa.

THREE OFFICERS TAKE RELEASE

On completion of their fixed period of service the following dental officers have taken their release: Capt. J. C. R. R. Roy of Quebec City, Capt. J. R. Myles of Ottawa, and Capt. R. J. Lewis of Annapolis Royal, Nova Scotia.

Public Health

FAULT DENTISTS FOR 'SUPERLATIVE CARE FOR PRIVILEGED FEW'

The dental profession has developed high capabilities for treating individual patients but the attention of the profession is still directed toward supplying superlative care for the privileged few, a Manitoba dentist told public health workers recently. T. L. Marsh, a regional director of dental services for the province of Manitoba and head of the dental public health section at the Faculty of Dentisty, University of Manitoba, was addressing delegates to the annual area conference of the Ontario Department of Health at Devil's Gap Lodge, Lake of the Woods, May 7-8.

The profession is only beginning to recognize its larger responsibilities for the dental health of the population as a whole, Dr. Marsh declared. It may well be, Dr. Marsh said, that the stimulation for effective planning by the profession to meet this need may have to come from personnel engaged in public health.

VANCOUVER DENTAL HEALTH SERVICES REPORT FURTHER PROGRESS

Vancouver's dental health program has made further gains according to D. J. Yeo, the city's director of dental health services. Over 7,000 preschool children were enrolled or inspected in the dental program last year, compared to only 1,558 inspected ten years ago. About 1,000 were treated by family dentists, 3,375 were treated in dental clinics, and 2,341 (33.4 per cent) required no treatment at the time of examination.

Kindergarten enrolment in Vancouver increased considerably during the past year. All kindergarten children received dental inspection, and by the end of the year 4,622 or 91 per cent of the total enrolment were restored to good dental health.

The number of children entering grade 1 in good dental health again increased last year compared to previous years. Last year 47½ per cent of all grade 1 children in the metropolitan area had no dental defects when inspected in September and October, reports Dr. Yeo. This means that 5,648 grade 1 children out of a total enrolment of 12,048 required no dental attention when they entered school. The most notable improvement occurred in the city of Vancouver where 43½ per cent of grade 1 children entering school in 1963 enjoyed good dental health, compared to 35 per cent the previous year. Dr. Yeo attributes this result to the kindergarten program of the previous year.

Grade 1 classroom inspections revealed 6,400 children requiring treatment. Of this total the city clinics provided treatment for 3,732 and family dentists cared for 2,136. By year's end 11,510 or 96 per cent of the grade 1 children enjoyed good dental health.

Dr. Yeo summarizes progress over the past ten years in the following terms: preschool examination coverage has increased from 1,558 to 7,020; preschool treatment has increased from 821 to 3,375; grade 1 enrolment has increased from 9,912 to 12,048; grade 1 treatment has increased correspondingly from 2,701 to 3,732. In 1954 only 69 per cent of grade 1 children were restored to good dental health while in 1963 over 96 per cent of the total grade 1 population enjoyed good dental health.

Fluoridation

HEALTH LEAGUE WELCOMES ROYAL COMMISSION'S FLUORIDATION PROPOSAL

The Royal Commission on Health Services' proposal that all public water supplies be fluoridated forthwith have brought this response from Mrs. J. W. Falkner, chairman of the National Fluoridation Committee of the Health League of Canada: "All the communities in Canada that have adopted fluoridation, and all the individuals and organizations who have consistently supported it —sometimes in the face of ridicule and wild distortion of facts—will share in the satisfaction and feeling of accomplishment that the Royal Commission on Health has brought with its recommendation."

Meanwhile, L. H. Bowen, executive secretary of the Fluoridation Committee, reports that one out of five of the Canadian population is now receiving fluoridated water.

Awards and Honours

DON W. GULLETT. At the recent annual convention of the British Columbia Dental Association, Don W. Gullett, retiring secre-

O. F. Wright, retiring president of the British Columbia Dental Association (l.) presents a certificate of honorary membership to Canadian Dental Association secretary Don W. Gullet (r.). Framed in the centre is A. E. Swanson of Vancouver, B.C.D.A. convention chairman.

tary of the Canadian Dental Association, was made an honorary member of the B.C.D.A. In his citation B.C.D.A. secretary W. Ross Upton enumerated Dr. Gullett's accomplishments over the years, and president O. F. Wright presented the certificate.

conventions • congrès

Eastern Ontario Dental Association meets in Brockville, September 27-29

The annual convention of the Eastern Ontario Dental Association will be held at the Skyline Hotel, Brockville, Ontario, September 27-29. The following program has been arranged:

Sunday, September 27

9.30 a.m. Four-hour boat cruise from Snider's Dock, Brockville
2.00 p.m. One-hour boat cruise through the 'Thousand Islands,' leaving Mallorytown Landing (8 miles from Brockville) at 2.00, 3.00, 4.00 and 5.00 p.m.
2.30 p.m. Four-hour boat cruise from Snider's Dock, Brockville
Golf and skeet shooting, morning and afternoon
7.30 p.m. Buffet Smorgasbord

Monday, September 28

9.30 a.m. Registration
10.00 a.m. R. F. Sommer, Ann Arbor, Michigan: Endodontics (1)
12.30 p.m. Mixed luncheon
2.00 p.m. R. F. Sommer, Ann Arbor, Michigan: Endodontics (2)
6.30 p.m. Cocktails
7.30 p.m. Dinner Dance

Tuesday, September 29

7.30 a.m. Public Health Breakfast
10.00 a.m. Eugene Hickey, Syracuse, New York: Oral surgery (1)
12.30 p.m. Luncheon
2.00 p.m. Eugene Hickey, Syracuse, New York: Oral surgery (2)

Events for ladies include the boat cruises and buffet on Sunday evening; coffee party, mixed luncheon, putting and bridge competition, cocktails and dinner dance on Monday; and coffee, tour of Brockville and luncheon at the 'Golden Oak' restaurant on Tuesday.

For further information write to K. L. Hargadon, secretary, Eastern Ontario Dental Association, 298 Elgin Street, Ottawa 4, Ontario.

announcements • avis

CANADIAN DENTAL ASSOCIATION			FÉDÉRATION DENTAIRE INTERNATIONALE	
1964			San Francisco	November 7-14
1965	Quebec City	May 30-June 2	Vienna	June 26-July 3
1966	Halifax	June 12-15	Israel	
1967	Toronto	May 14-17	Paris	July 7-13

Aug. 24-28, 1964	New Zealand Dental Association	University of Auckland, Auckland, N.Z.	Mr. D. I. Pert	12 Kitchener Street, Auckland C.1., N.Z.
Sept. 10-12, 1964	Newfoundland Dental Society	Corner Brook, Newfoundland	Dr. R. W. MacLeod	63 Broadway, Corner Brook, Nfld.
Sept. 11-13, 1964	Northern Ontario Dental Association	North Bay, Ontario	Dr. R. C. Weegar	539 Cassells Street, North Bay, Ont.
Sept. 27-29, 1964	Eastern Ontario Dental Association	Skyline Hotel, Brockville	Dr. K. L. Hargadon	298 Elgin Street, Ottawa 4, Ont.
4 oct., 1964	Académie canadienne des Sciences dentaires	Centre Social, Université de Montréal	Dr. A. J. Guay	132 rue Radisson, Trois-Rivières, P. Qué.
Oct. 24-25, 1964	Montreal Dental Club Pre-Clinic Seminar	Queen Elizabeth Hotel, Montreal	Dr. George Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Oct. 26-27, 1964	Montreal Dental Club Fall Clinic	Queen Elizabeth Hotel, Montreal	Dr. George Dundass	4545 Sherbrooke St. W., Westmount, Montreal 6, P. Que.
Nov. 9-12, 1964	American Dental Association	San Francisco, California	Dr. H. Hillenbrand	222 East Superior Street, Chicago 11, Ill., U.S.A.
23-29 nov., 1964	38es Journées dentaires internationales de Paris	Maison de la Chimie, Paris	M. Henri Sahel	75 rue Blanche, Paris-9e, France
Nov. 26, 1964	Annual Winter Clinic, Toronto Academy of Dentistry	Royal York Hotel, Toronto	Mrs. N. H. Montgomery	230 St. George Street, Toronto, Ont.
Dec. 26-31, 1964	American Association for the Advancement of Science	Queen Elizabeth Hotel, Montreal	Mr. R. L. Taylor	1515 Massachusetts Avenue, N.W., Washington 5, D.C., U.S.A.

TORONTO • A one-day postgraduate course in PERIODONTAL CHANGES IN SYSTEMIC DISEASE will be presented at the Faculty of Dentistry, University of Toronto, October 27, 1964, 9.30 a.m. to 5.00 p.m., by Professor J. J. Pindborg of the Royal Dental College, Copenhagen, Denmark. Registration fee $20. Communications should be addressed to the Chairman of Graduate and Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

Note • Due to lack of space the Journal cannot accommodate all announcements of foreign dental meetings and postgraduate and refresher courses. Readers are invited to write to C.D.A. headquarters for information concerning unlisted meetings and courses. Further information concerning listed meetings and courses should be sought from the sponsoring institution.

The Canadian Dental Association

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L'Association Dentaire Canadienne

Insurance approach to prepaid dental care

J. E. Morrison, F.S.A., Winnipeg, Manitoba*

Licensed commercial health insurers can be an effective partner of the dental profession in providing better dental care.

Les compagnies d'assurance peuvent aider grandement la profession à prodiguer de meilleurs soins dentaires à la population.

This is a large subject to cover in a short talk. I shall therefore limit my remarks to a brief comment on two aspects — first, some of the trends and approaches as we see them today, and secondly, to some observations on the important considerations that I believe should guide any insurers entering this field, whether they be an insurance company or a professionally sponsored dental insurance plan.

The views I express are my own and do not necessarily coincide with health insurers generally or my own company in particular.

The subject of dental insurance is now receiving a great deal of attention in Canada and the United States. Nearly all

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Presented at the annual meeting of the Manitoba Dental Association, Winnipeg, January 22, 1964.
*Executive vice-president, The Great-West Life Assurance Company, Winnipeg.

provincial and state dental societies have been studying the subject, and in the United States 21 state dental service corporations have been formed. In seven of these states programs are now operational. Among the health insurers, 20 of the larger companies have entered the field and in 11 of these companies one or more dental insurance plans have been underwritten.

The most recent information we have is that about 1½ million people are now covered by prepaid dental care plans of all kinds, mostly in the United States. These plans have been largely established in the last four years on a group basis, with employers paying all or a substantial part of the cost. Increased interest appears evident on all sides. Many enthusiastic predictions are being made as to extension of these services in the years ahead and one can take a choice of many different predictions all the way to a further growth by ten times before 1970 and by 20 times in the next ten years.

Approaches and principles

When we speak of dental insurance as "insurance" it is important to keep in mind what constitutes insurability. The tests that are most frequently applied to determine insurability are: (1) that the risk or hazard is a rare event; (2) that its occurrence exposes the recipient of insurance to serious financial expenditures; and (3) the event being insured against must not be controllable by the person insured.

When we look at dental insurance we are at considerable variance with these criteria in several respects. However, we can come much closer to fitting the definition by employing such things as deductibles and co-insurance or sharing of cost principles.

Deductibles provide that the insured person pay the first $25 or $50, or perhaps even $100, of cost, as most of us do in the case of our car insurance. This limits insurance to payment for the less frequent event and also has the feature of restricting payment to areas of more important financial consequence.

Co-insurance provides that the insured person share or coinsure the benefits with the insurer on some predetermined basis such as 25 per cent by the insured person and 75 per cent by the insurer. This feature introduces some control on usage.

The higher the deductible and the co-insurance share the lower the cost of the plan and the closer we are to the application of insurance principles within the usually accepted meaning of insurance.

The alternative to insurance at the other extreme is a plan paying all benefits according to definition from the first dollar and without limit. Most medical service plans operate on this basis and they are in reality budgeting mechanisms rather than insurance.

To put this explanation into more concrete terms, let us look at one of the first dental insurance plans written in 1959 for employees of the Dentists' Supply Company of New York. This plan provides coverage for a broad range of dental services. Payment is made on the basis of actual charges and not in accordance with a specific fee schedule. This plan has annual deductibles of $10 per person and a maximum deductible for a family of $30. The cost of claims above the deductible is shared 80 per cent by the insurer and 20 per cent by the insured. The co-insurance feature is therefore 20 per cent. The plan pays yearly maximum claims of $400 for the individual and $1,000 for the family. A higher co-insurance share of the cost at 40 per cent is paid by the insured for two special services — orthodontic treatment and denture replacement — and there is an overall lifetime maximum on orthodontic claims for each individual. There is no deductible for routine examination and cleaning of teeth. This is the plan after it has been in operation for two years.

During the first two years most plans have special conditions to provide some element of cost control for pre-existing conditions or stored-up dental neglect.

In this particular plan the deductible is higher for the first year at $25 per person and $75 for the family and the maximum payment is graded down for the first two years.

The annual cost of a plan of this kind for a typical group of employees might average out at around $85 to $100 per employee, depending on the distribution of single lives and family members. (The specific rate for a family might be $125 and the single rate $35, bringing out the average quoted.)

I have described this plan in some detail merely to acquaint you with the general framework of dental insurance plans and the technical features in terms which have come into use for such plans. Also it provides a basis for discussion of alternative programs or provisions under plans offered by licensed insurers and plans sponsored by professional groups.

Plan variations

Alternative programs result in part from differences in philosophy and in part from considerations associated with marketing dental insurance under competitive conditions. The first major distinguishing feature comes under the heading we have just touched on, *insurance versus budgeting*. Differences in philosophy and plans can run all the way from insurance of only the relatively rare, high cost dental expense to 'budget' coverage for virtually every dollar of cost at the other extreme. Available information on insured plans written to date indicates that few of these plans are following so-called pure insurance principles with high deductible and co-insurance elements. The more common approach is the Dental Supply type of plan which falls under a heading of modified insurance approach with a low deductible, relatively heavy incidence of claim payments and corresponding high annual premium required on this account. Any trends in this direction are not necessarily influenced by the insurer since a choice in the level of deductible or co-insurance is usually available within limits.

On the other hand, so far as we know, few professionally sponsored plans are adopting pure budget approaches from the outset without some of the limitations and controls applied under the insurance approach.

It is hoped that we may continue to see experimentation and variations in degree of insurance protection offered and that all plans will employ sound principles of underwriting, pricing and sharing of costs with the insured.

A second variation in plans comes under the heading *separate plan or benefit integration*. Dental insurance can be provided either as a distinct separate plan or it may be offered as one element in an overall health care plan covering dental, medical and paramedical services. There are arguments for and against both methods.

A separate plan is desirable during the early years of dental coverage because it permits data to be gathered more readily. It also allows greater experimentation in the underwriting, design of benefits and other areas where distinctive treatment may be required. Further, since much of the impetus for the development of dental plans comes from the dental profession it may seem desirable for the profession to have a single identifiable plan. In this way the profession can exercise greater control over the features of plan development and administration.

On the other hand, an integrated plan, where the patient is regarded in terms of "total health" needs and not in compartments, makes considerable sense, particularly when applied to insurance against high costs of all kinds. From the patient's point of view it is small comfort to know that he is covered in full for medical care in a year in which his family's dental expenses are $1,000.

For the time being, practical considerations seem to indicate the need for a separate approach to dental insurance at the outset. In the long run, however, I believe the integrated insurance approach is the

one most likely to best serve the health needs of the public.

Another element of variation in plans comes under the heading of *fee schedules.* Professionally sponsored insurance plans almost invariably include stipulated fee schedules approved by the profession. Plans issued by licensed insurers may be offered on either a scheduled or an unscheduled and comprehensive basis. The majority of insurance plans now in effect, however, are unscheduled, but sometimes with provision that where fees seem unreasonable payment may be made on the basis of some specified and recognized standard applicable to the area in question. This system has the advantage of automatically recognizing variation in fees by geographic location and at the same time avoiding any appearance of attempting to influence the level of fee schedules. On the other hand, it makes cost control more difficult. This is an area where cooperation and understanding between the insurer and the profession is essential to the successful operation of such plans.

Finally, we see considerable variation between plans in the elements of *cost control.* For the licensed insurers the cost controls are applied mainly in the form of deductibles, co-insurance and limits on the total overall payment for a given year. In the case of professionally sponsored insurers, these controls are sometimes absent but there are usually other practical limitations or exclusions, such as the limitation of payment for gold crowns and inlays to the corresponding cost of silver, technical limitations as to what constitutes correctable malocclusion, limitations on pre-existing conditions, and so on. Licensed insurers do not generally impose limitations or exclusions of this kind since they tend to regulate standards of care and might be subject to misunderstanding by the insured and the profession.

Failure to observe practical guidelines and common sense cost controls could, however, be disastrous in this field. One evidence of the serious financial implications of running a dental insurance plan is found in the history of one of the earliest and most widely accepted of the professionally sponsored plans. This plan, after seven years' operation, went out of business with $400,000 of unpaid claims due its participating dentists.

Summary and conclusions

In its historical perspective, dental insurance stands where medical insurance stood 25 years ago. Although fewer than two million people on this continent are now covered, current trends clearly indicate that dental insurance will grow and may rival the growth of medical insurance. With this growth an important question is whether the profession and all insurers will benefit from the lessons of the past and develop sound and vigorous dental insurance programs in harmony with the interests of the public.

Evidence to date is encouraging. Most plans introduced to this time appear to be based on sound insurance and underwriting principles, with the individual insured assuming responsibility for part of the direct cost of his dental care.

In the medical care insurance field, however, the situation in Canada today is quite different. A large part of medical coverage, including virtually all plans underwritten by medical service corporations and other similar plans underwritten by licensed insurers in competition today, provide coverage on a service basis in full from the first dollar of expense and without any really effective controls applicable to the insured or the service rendered. As a consequence, these plans have experienced markedly rising costs and increased pro-rating of fees under medical service plans. As costs rise we have growing demands for take-over of such services by government.

Another lesson from the past in other forms of insurance for health care is that plans providing a complete package of benefits without limitation as to coverage or costs, once established are irreversible. There is no drawing back to a more limit-

ed program of benefits. Consequently, even though the profession introduces its plan partly, or perhaps primarily, to have some control in benefit design, unless care is exercised in the early stages of development there is no freedom to the profession on modifying the design.

In the light of this historical background I believe it is important for the dental profession to seriously consider and answer the question—will the public interest be served by competition between insurers of all kinds on a sound and equitable basis, or should an insurance or budgeting plan be developed essentially by the profession with a goal of uniformity for insurers and individuals insured? It seems to me the answer is clearly in favour of the former unless one feels that a state operated plan is in the long term public interest and the ultimate answer to any plan for sharing of dental care costs.

In answering my first question regarding competition on a sound and equitable basis, it should be understood that this implies no special cost advantages for the professionally sponsored dental insurance plans through pro-rating of fees by the profession. This practice will, I believe, break down in the end in a free and competitive society because the single insurer with the cost advantage ultimately obtains a monopoly as the provider of such coverage and thereby creates a ready-made mechanism for transfer of such services to the state. I believe there is growing appreciation and agreement with this principle on the part of increasing numbers of the medical profession during the past few years.

On the other hand, it should also be clearly understood that the licensed insurers have a responsibility to establish plans that are in the interests of the public and the dental profession. To this end it is important that the dental profession and health insurers maintain open channels of communication and co-operation at all levels of their respective associations.

As to the future, many signs point toward increased interest in the field of prepaid dental care insurance by all parties concerned — the public, the dental profession and the health insurers. It therefore seems especially important that there be a free exchange of views on this subject in the months ahead when emerging plans are being considered in Canada. The ultimate success of such plans will be closely related to the soundness of the principles of operation established and I believe that the licensed health insurers can be an effective partner of the dental profession in providing better dental care for the citizens of Canada.

Résumé

Les assurances dentaires sont au point où en étaient les assurances médicales, il y a vingt-cinq ans. Il y a moins de 2 millions de personnes, sur ce continent, qui possèdent de ces assurances; néanmoins, on peut s'attendre à ce que les assurances dentaires prennent un grand essor et rivalisent en progrès avec les assurances médicales. L'institution d'assurances dentaires soulève toutefois un problème: la profession et les assureurs profiteront-ils des leçons du passé et élaboreront-ils des plans raisonnables et sensés qui soient en harmonie avec l'intérêt réel du public?

A date, le travail accompli est encourageant. La plupart des plans élaborés jusqu'à maintenant se basent sur des principes sérieux d'assurance et d'administration, l'assuré assumant la responsabilité de payer en partie les déboursés directement occasionnés par le soin de ses dents.

La situation au Canada des plans d'assurance médicale diffère quelque peu aujourd'hui. La plupart des plans offerts par des corporations de services médicaux ou par des compagnies à charte donne une protection basée sur les services reçus à partir du premier dollar d'honoraires, sans contrôle réellement effectif de la part des assurés sur les services prodigués. Il s'en suit que ces plans coûtent de plus en plus cher et que la proportion des honoraires augmente sans cesse. Cette ascension des primes porte la population à

souhaiter que le gouvernement contrôle les services médicaux.

L'histoire des plans d'assurances de santé fournissent une autre leçon: les plans qui donnent une protection complète, sans limite pour les honoraires ou pour les services, ne peuvent pas être changés une fois qu'ils sont établis. Il ne peut pas être question d'en limiter les bénéfices. C'est pourquoi, à moins d'être très prudente, la profession, pour exercer un contrôle au bénéfice des assurés, même si elle lance un plan ou le propose en partie, peut difficilement, plus tard, en modifier la structure.

Il est bon, à la lumière de l'expérience du passé, que la profession dentaire étudie et réponde sérieusement à cette question: l'intérêt du public, au point de vue raison et équité, serait-t-il mieux servi par la concurrence que se feront les compagnies pour toutes sortes de plans que par un plan d'assurance ou un plan de prépaiements que la profession pourrait établir avec l'idée d'uniformiser les clauses tant pour les assureurs que pour les assurés? La première option est certes la meilleure, à moins qu'on croit qu'un plan établi par le gouvernement protégerait mieux, à toutes fins pratiques, les intérêts de la population et que ce système gouvernemental serait la solution idéale pour répartir le coût des traitements dentaires.

Il faut comprendre, en regard de la concurrence au point de vue raison et équité, que cette formule ne comporte pas d'avantages particuliers quant au coût de plans d'assurance patronisés par la profession et dont les honoraires seraient proportionnellement fixés par elle. Cette façon de faire, à la fin, équivaudrait à une libre concurrence où la compagnie qui a les meilleurs taux obtient un quasi-monopole pour cette protection et crée ainsi une organisation toute faite pour ces services qu'elle peut transmettre à l'Etat.

Par ailleurs, il faudrait qu'il soit bien entendu que les compagnies commerciales d'assurances aient la responsabilité d'élaborer des plans qui soient à l'avantage du public et de profession dentaire. Il conviendrait, dans ce but, que la profession dentaire et les compagnies d'assurances pour la santé maintiennent des échanges pour collaborer à tous les niveaux de leurs associations respectives.

Il semble que tous les intéressés à l'assurance dentaire — le public, la profession et les compagnies commerciales — manifestent de plus en plus d'attirance pour ce genre de protection. Il est donc important, quand, dans quelques mois, des plans seront proposés au public du Canada, qu'il y ait des échanges de vues nombreuses sur la question. Le succès de ces plans repose sur la solidité des principes qui serviront à leur administration. Les compagnies d'assurances peuvent aider grandement la profession à prodiguer de meilleurs soins dentaires à la population canadienne.

"There is no more dangerous illusion than the comfortable doctrine that the world owes us a living. The future depends on the speed with which we come to terms with the world of change."—Harold Wilson.

Caries prevalence related to fluoridated water intake of six-year old children

Alan S. Gray, D.D.S., D.D.P.H., Kelowna, G. H. Bonham,† M.D., D.P.H., and Marie Luttrell, R.N., P.H.N., Prince George, British Columbia*

There are slight differences in caries attack rates of children with high and with low fluoride intakes from birth to two years of age.

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Il y a une différence dans les taux de caries chez les enfants qui consomment de grandes ou de petites quantités d'eau fluorée, de leur naissance à deux ans.

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Fluoridation (to a concentration of 1 ppm) has been shown to be 40-65 per cent effective in reducing dental decay (deciduous teeth 40-45 per cent, permanent teeth 60-65 per cent).[1,2] That full protection is not achieved is due likely to several factors. One of these is the variation in genetic susceptibility to dental caries between individuals and between different individual teeth.[3] The capacity to incorporate fluoride into tooth structure may vary according to genetic differences in the ability to metabolize it.[4] Considerable differences in the cariogenicity of each individual's diet may exist.[5] Preventive care may be greater in some homes than others. Low fluoridated water intakes will also reduce the level of protection achieved. This may come about because some children do not like to drink water and so obtain their fluid intake from other than the fluoridated community source. It has been our personal observation that there are great differences in intake of fluoridated fluids by children in different homes. For example, powdered milk when reconstituted with fluoridated tap water contains a significant amount of fluoride, whereas whole milk has no fluoride.

An attempt was made to investigate any correlation between the amount of fluoridated fluid consumed and the subsequent caries prevalence (average def tooth scores) in children living all their lives in a fluoridated community.

*Regional dental consultant, Health Branch, British Columbia.
†Director, Northern Interior Health Unit, Prince George, British Columbia.

Method of study

Prince George, a northern community in British Columbia, commenced fluoridation in September 1955. Many of the children who entered school for the first time in the fall of 1962 had therefore lived all their lives in a fluoridated community. All eligible children were gathered into a study population upon confirmation of the residence of the mother during the last four months of pregnancy. Children who were absent from the community for a continuous period of more than eight weeks were excluded from the study.

In September 1962 there were 553 grade 1 children enrolled in the Prince George schools. Of these, only 192 children fulfilled the above requirements. It was possible to complete the study on 160 children of this group, comprised of 76 boys and 84 girls. Each child was six years of age during the study period from October 1962 to February 1963.

Dental examination, using plane mouth mirrors, explorers and good illumination, was carried out by the dental officer in the medical room at the school. A diagrammatic chart was used to record the findings from each child's mouth. A further separate count of decayed, missing and filled teeth was made on a separate form. The diagrammatic record and the numerical count were then compared while the patient was still present. Where any difference occurred, the patient was re-examined. This procedure enhanced the accuracy of examining and recording. The examinations were all completed by the same examiner who had no knowledge, at the time of the examination, of the fluid intake history of the child.

The types of dentition encountered were varied. The permanent teeth present had had very little opportunity to decay. These teeth were therefore ignored when calculating caries attack rates. Because anterior deciduous teeth could be either absent (due to normal exfoliation) or present, they also were ignored. The subjects were expected to have all deciduous cuspids and deciduous first and second molars. Accordingly, the total decayed, missing or filled (def) deciduous cuspids, first and second molars were tallied for a final caries score. Thus the same teeth, and the same number of teeth, which had been at risk in each child were included for study purposes.

Fluid intake information for each subject was collected by two different methods. A specially trained public health nurse interviewed a parent and recorded a history of the nature of the child's fluid consumption. Although in retrospect the parent might not remember amounts, he could remember the nature of the fluid intake (for instance, whether or not the child was breast fed, or used a formula made up of half evaporated milk and half fluoridated water, or made up of powdered milk and almost all fluoridated water). The history included the age at which the child started using milk, water, juices, soups and other beverages such as carbonated drinks, tea or coffee. A separate section on the history sheet was provided for each type of beverage, so that none would be missed. Types of the various fluids as to frozen, fresh, canned, powdered and so forth were checked. In addition, following detailed instructions by the interviewing nurse, the parent subsequently completed a week's record of the nature and amount of the current fluid consumption of the child. The child's usual drinking glass was measured by the interviewer and used for miscellaneous drinks of water, juice, and so forth.

The probable total fluid intake of each subject during the periods from birth to six months and from six months to two years was estimated as being within the ranges of fluid intakes published by Nelson.[6] These intervals were chosen as being those most likely to correspond to periods of change of diet (predominantly liquid diet until age six months; introduction to various family foods up to age two; thereafter partaking foods generally consumed by the rest of the family). From the present weight and birth weight each child's weight was extrapolated for the same two periods. The volume of milk con-

TABLE 1 Caries attack rates of 160 six-year old Prince George children according to fluoridated water intake during infancy.

Period fluid intake evaluated	"High" fluoride intake group of 80 children		"Low" fluoride intake group of 80 children	
	Caries attack rate*	Standard error	Caries attack rate*	Standard error
Birth — 6 months	3.6	0.13	3.8	0.4
6 months — 2 years	3.7	0.35	3.8	0.35

*Decayed, missing or filled deciduous cuspids, first and second molars per child.

TABLE 2 Caries attack rates of 160 six-year old Prince George children according to fluoridated water intake during period 2-6 years.

Estimated fluoride fluid intake in ounces per day	Number of children in group	Number of children caries free	Caries attack rate*	Standard error
0 - 9	62	12	4.0	0.4
10 - 19	57	10	3.9	0.39
20 and greater	41	15	3.4	0.55
30 and greater	14	7	3.0	0.96
40 and greater	8	5	2.4	1.3

*Decayed, missing or filled deciduous cuspids, first and second molars per child.

sumed during these periods was estimated as the probable total daily fluid intake less the recorded volumes of other fluids such as water, juices, soups, and so forth. From the fluid intake history of each subject a further estimation was made as to the percentage of the total fluid intake which likely contained fluoridated water.

The recorded current fluid intake pattern was presumed to have prevailed during the entire period from age two to six unless changes of pattern were reported in the fluid intake history by the parent. When changes occurred (59 out of 160 subjects) adjustments were made based on the volume of fluids ingested as recorded by inventory and on the nature of the fluids ingested as reported by history (for example, switched to powdered milk from whole milk at age four years). The adjustment was made on the probable weight of the child during the earlier periods. All calculations were made by two of the authors independently and without knowledge of the dental examinations.

Results

There was no correlation between the estimated fluoridated fluid intake from birth to six months and from six months to two years and the current caries attack rates. When plotted on graph paper there was no sign of any correlation pattern. When a correlation co-efficient was worked out, "r" was in the neighbourhood of —0.108. The percentage of total fluid intake estimated as being fluoridated varied greatly. The ranges of intake of fluoridated water were zero to 99 per cent for the first period and two to 95 per cent for the second period. When the children were

divided equally into 'high' and 'low' fluoride intake groups, the average caries scores obtained were slightly lower for the high fluoride group (Table 1).

Higher fluoride intakes during the period two to six years appeared to be associated with lower caries attack rates (Table 2). T-tests were done for each of the groups in Table 2, testing for differences with each of the groups having higher fluoridated fluid intakes. Although the differences are not statistically significant individually, they do indicate a very clear trend. The direction of the differences appears to be the important feature.

Difficulties and inaccuracies arise in any retrospective recording of fluid intakes. It is difficult to understand why there is no difference in caries attack rates under high and low fluoride intakes in the period from zero to two years, when the teeth were calcifying, and then a reduction with higher fluoride intakes from two to six years. This indicates either an improbable topical effect far exceeding that found in most other studies, or that estimates of fluoride intake at zero to two years were faulty. Very likely the problems presented by the retrospective nature of this study preclude accuracy in estimating fluoride intakes.

This study also revealed the nature of fluids ingested by 6-year old children in our health region. The major sources of dietary liquids were milk, water and canned or frozen fruit juices. All 160 children drank milk which formed 52.7 per cent of the total fluid consumed. The average consumption was estimated at 17.6 ounces per day, but the range of reported use of milk was from 3 ounces to 52 ounces per day. Only 136 children (85 per cent) drank water as such. This was estimated as 23.8 per cent of the total fluid consumed. The range of reported use of water was from zero to 29 ounces per day. The average recorded consumption per child was 7.9 ounces. Approximately 53 per cent of the children reported drinking juices. It was estimated that juices formed 7.8 per cent of the total fluid consumed.

Discussion of results

Previous reports indicate that average fluid intake depends on climate, body size and degree of activity.[7,8] The range of fluid intake in ounces per pound of body weight per day is relatively narrow.[7,8] This study indicates that the range of total fluid intake of 6-year olds during the winter months in this northern community is extremely great (from 0.24 ounces per pound body weight per day to 2.01 ounces per pound body weight per day).

As a result the average fluoridated fluid intake of subjects in this study was estimated to be lower than desirable during the study period. It should be noted that the fluid intake patterns of the subjects in this study were recorded during the winter months between October and February. These patterns may not represent those prevailing throughout a twelve month period. Prince George has a lower mean temperature and is further north than other communities in which fluid intake of children has previously been reported. Also, difficulties and inaccuracies arise in any retrospective recording of fluid intakes.

Galagan[9] has suggested that children will receive the proper amount of fluoride when the fluoride content of the water is adjusted to the formula

$$\text{ppm} = \frac{0.34}{E}$$

$$(E = -0.038 + 0.0662T)$$

where E is the estimated water consumption for children through ten years of age in ounces per pound body weight and T is the mean maximum temperature in degrees Fahrenheit.

Witkop et al[10] have suggested a further refinement of Galagan's formula, recommending that

$$E = \frac{(-0.038 + 0.0662T)}{0.56} W$$

where W is the average proportion of domestic water in the total daily fluid intake of children zero to 10 years of age in the community. This takes into account the fact that regional differences exist in parts of the world as to choices of fluids, milk being more prevalent in some countries than in others.

Both of these formulae are based on the assumption that the average intake of fluid per pound body weight is fairly constant. Our study on 6-year old children living in a northern community in British Columbia does not support this conclusion and indeed suggests that such fluid intake is extremely variable during the winter months.

A 52 per cent reduction in DMF rates of 6 to 8-year old Prince George children was observed after six years of fluoridation.[11] It may be a point of nutritional interest that children may not necessarily receive an adequate supply of fluoride when the community water supply is fluoridated. Perhaps an even greater reduction in caries attack rates might have resulted in Prince George if parents had encouraged children to drink water so that by age six each child would consume two full glasses per day throughout the year.

Conclusions

Slight but not significant differences have been demonstrated between the caries attack rates of 6-year old children with 'high' or 'low' fluoride intakes in liquids during the periods from birth to six months and from six months to two years of age.

Caries attack rates of 6-year old children reflect a definite, though still not significant, trend indicating that subjects having an estimated higher fluoride intake during the period from two to six years of age experience less dental caries.

The estimated average fluid and fluoride intakes in fluids of young children of this northern community are probably lower and more variable than reported from other warmer centres.

In a fluoridated community children should be urged to drink at least two full glasses of water every day throughout the year.

A further longitudinal study is necessary to test the hypothesis that an inverse relationship exists in a fluoridated community between caries attack rates and previous fluoride intake of children born and raised in that community.

Résumé

Il y a une différence—mais non marquée — dans le taux des caries chez les enfants de six ans de Prince George, Colombie britannique, qui consomment de 'grandes' ou de 'petites' quantités d'eau fluorée, de leur naissance à six mois et de six mois à deux ans.

Il y a des signes précis, mais non concluants, indiquant que le taux de la carie chez des enfants de six ans qui consomment, de deux ans à six ans, de plus grandes quantités de fluor a une tendance à baisser.

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390 Queensway, Kelowna

M. M. Blackburn, D.D.S.,*
Edmonton, Alberta

One-year evaluation of twelve mouth protectors for Edmonton hockey players

Mouth protectors greatly reduce the risk of oral injury in hockey players. Custom-made and latex protectors were found to be superior to other protectors.

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Les joueurs de hockey, en portant des protecteurs pour les dents, peuvent grandement diminuer les risques de blessures à la bouche. Des protecteurs confectionnés à la pièce, et les appareils en latex, sont meilleurs que les autres.

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With 6,000 boys playing hockey in the Edmonton area, it is very disheartening to see several of these young players appear in dental offices with fractured teeth each year. This is disturbing because (1) these accidents can be prevented, and (2) the affected teeth will need emergency treatment and attention for the rest of their life.[1]

Edmonton insurance statistics show that from 20 to 60 per cent of the compensation for hockey injuries is paid to dentists (Table 1), and that more than one-half of all hockey injuries occur in the area of the mouth. There is also a direct relationship between inexperience of the player and his liability to suffer injury. Therefore, all youngsters participating in this contact sport should be given adequate protection.

A committee was appointed by the Edmonton and District Dental Society to work with the Edmonton and District Hockey Association and determine whether a suitable mouth protector could reduce the frequency of oral injury among young hockey players. This committee has now completed a one-year (1962-3) survey on several different types of protective devices. The 175 players who participated in the survey ranged from eight to 20 years of age. The older boys played with the University of Alberta Golden Bears and Faculty of Dentistry hockey teams. The younger players were juniors, juveniles, midgets, and community leaguers. One to three teams were select-

*Chairman, Edmonton and District Dental Society Mouth Protector Committee.

TABLE 1 Compensation paid for dental injuries attributed to hockey accidents, 1961-63 hockey seasons.

Payments by Edmonton office, Continental Casualty Company	
Amount of claims paid for dental injuries	$9,708
Number of claims for dental injuries	164
Average amount of claim	$59.20
Dental claims as a percentage of total claims paid	40.5 per cent
Payments by other companies	
Dental claims as a percentage of total claims paid	20-60 per cent

ed in each age group by the hockey association.

The hockey association provided funds to furnish protective devices to the hockey players. The University of Alberta donated facilities to fabricate the appliances. Members of the Edmonton and District Dental Society processed and evaluated the different devices. As far as we know this was the first such survey on hockey players.

Twice during the hockey season questionnaires[2] (Figure 1) were completed by the hockey players to determine player reaction. One hundred and forty-six completed questionnaires were returned. The results were evaluated by rating the aggregate responses for the qualities (retention, comfort, speech, tear resistance, protection, breathing) of the different appliances on a percentile scale (100—excellent, 66—good, 33—fair, 0—poor).

Four different types of mouth protectors are currently available for hockey players. The custom-made protector is obtained by taking an impression of the upper arch and sometimes the lower arch, pouring a model, and fabricating the appliance on this model. We tested four different varieties: latex, processed resilient acrylic resin, soft acrylic resin, and vinyl plastic vacuum formed custom-made protectors. The second type is the external protector (Mug-Guard). This is affixed on the outside of the face and held in position by the straps of a helmet. The third type is a mouth-formed protector. It comes as a manufactured kit containing a fairly tough outer shell of rubber, soft acrylic resin or vinyl plastic, and a resilient liner made from acrylic or silicone powder and liquid. The shell and the liner are fitted to the teeth. Seven varieties were tested. The fourth type is the stock manufactured or "Boxer" mouth protector.

Custom-made protectors

The Joint Committee on Mouth Protectors of the American Association for Health, Physical Education and Recreation, and the American Dental Association found the custom-made latex mouth protector possessed the most desirable qualities.[3] We therefore made the majority of our appliances from this material. But for hockey players the latex appliance rated lowest of all the custom-made appliances. Of over 100 made, only about half were worn throughout the whole season, and of these nearly all wore through. Also a majority of the players complained of dryness and dehydration of the mouth. Many players also complained of gagging, even after their appliances were trimmed. Latex appliances were very hard to keep clean. Their best features were economy and high protection rating.

Processed resilient acrylic resin protectors (Impak, Verri Soft) ranked highest in most qualities. They were worn throughout the whole season by all but one player. They ranked excellent in

durability and tear resistance, also in retention and protection. They were good from the standpoint of comfort and speech. There was some complaint over slightly impaired breathing and difficulty in removing the appliance, but the biggest disadvantage was cost. Of all the mouth protectors, these were the most expensive because they had to be articulated, waxed up and processed. The material was also more expensive than for the other types of protectors.

Soft acrylic resin protectors tested were the Shaw Laboratory Mouth Guard (processed) and the Coe-Soft appliance (quick cure). Both are pink in colour. These appliances ranked nearly as high in every quality as processed resilient acrylic resin protectors, and amounted to about half the cost of the latter. Comfort rating was a little higher, but tear resistance was slightly lower. Retention and protection were excellent. The biggest complaint was excessive salivation (just the opposite to the latex appliances) and a slight taste. The Shaw protector proved to have less taste, and better tear resistance and durability than the Coe-Soft appliance. This protector also proved the best for any player wearing an orthodontic appliance.

A vinyl plastic vacuum formed appliance was also tested. This type of protector ranked good to excellent on all questionnaires, rating about equal to the processed acrylic type. One respondent described the retentive qualities as "retention without conscious effort." In terms of the qualities tested and cost, we now

HOCKEY MOUTH PIECE
QUESTIONNAIRE

A. How did your mouth guard rate as to:

1. Retention	☐ Excellent	☐ Good	☐ Fair	☐ Poor
2. Comfort	☐ Excellent	☐ Good	☐ Fair	☐ Poor
3. Speech	☐ Excellent	☐ Good	☐ Fair	☐ Poor
4. Tear resistance	☐ Excellent	☐ Good	☐ Fair	☐ Poor
5. Protection	☐ Excellent	☐ Good	☐ Fair	☐ Poor
6. Breathing	☐ Excellent	☐ Good	☐ Fair	☐ Poor

B. Did you wear it continually during each game? ☐ Yes ☐ No

C. How many games?_____

D. Do you feel wearing it you are:

☐ More aggressive ☐ Less aggressive ☐ Makes no difference

E. What feature of the mouth protector did you like best?_____

_____

F. What complaints, if any?_____

Please complete this form as soon as possible and hand it to your coach.
Coaches are requested to pass this form to the respective hockey directors as soon as possible.

FIGURE 1

consider this the best mouth protector. Spencer-Le Maire Plastics Industries, Ltd. of Edmonton have developed a new process of manufacturing these appliances with a polyethylene cover at a reasonable charge.

External protector

The Mug-Guard, an external protector developed by Wood[4] of Toronto, is worn outside the mouth, attached to a helmet. It is sold separately or together with the helmet by Simpsons-Sears. The Mug-Guard gives no protection to the back teeth or from a blow under the chin, and it must be worn with a helmet. We found that some players complained of perspiring under this protector and straps, while others adapted to it with no trouble. The biggest advantage is that it can be worn from season to season in the age group which has a changing dentition. We feel the cost is reasonable.

Mouth-formed protectors

We tested seven mouth-formed protectors: Shield, Coe Dental Pre-formed Guard, Professional Tooth Protector, Featherbite, Smile-Saver, Plast-o-Guard and Oral-Guard. The disadvantages of these protectors are bulkiness, some discomfort, and much less retention than with custom-made appliances. Their biggest advantages are moderate cost and the fact that only one sitting is required of the patient. We preferred the Shield, Coe Dental Preformed Guard and Professional Tooth Protector. The Featherbite, Smile-Saver, Plast-o-Guard and Oral-Guard were inferior or more expensive.

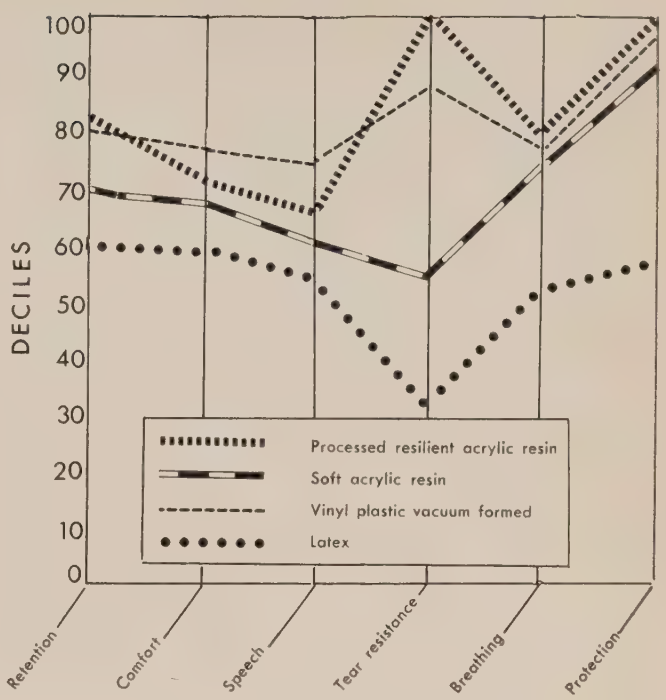

FIGURE 2 Comparative evaluation of four types of custom-made mouth protectors.

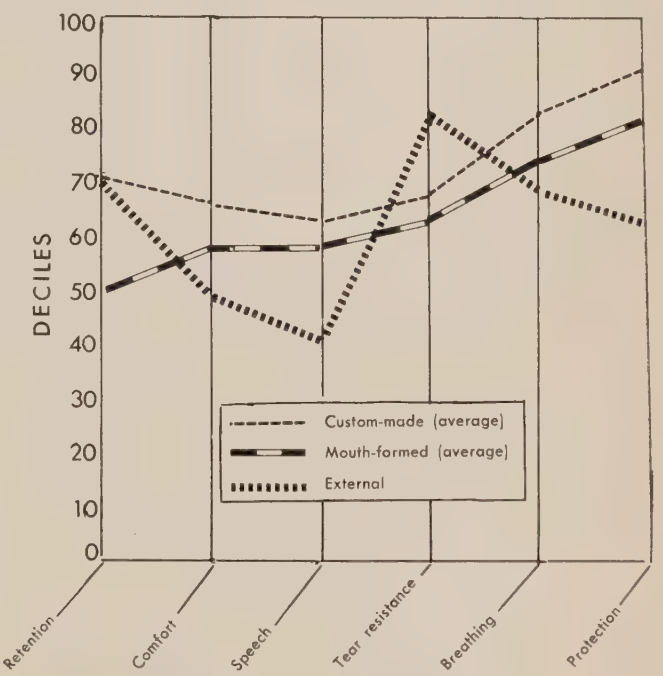

FIGURE 3 Comparative evaluation of custom-made, mouth-formed and external mouth protectors.

Jock or boxer protector

These protectors may be purchased in sporting goods store. They are made in one standard size. Because of very bad experience with football players elsewhere, we did not test this type of protector.

General observations

Players found that a breaking-in period was necessary with each protector. If worn for a week or two during practice, the appliance usually became as easy to wear as any piece of equipment. There were fewer complaints when the whole team was wearing protectors than where only one or two players on the team wore them. This, of course, is true where any new item of equipment is introduced. Of the players who continued to wear their appliance for the full season, we had only one report of an injury, this being a bruised lip. The injury would likely have been more serious if the victim had not worn his mouth protector. At the end of the season most of the players claimed that they felt more aggressive when wearing a protector. Many, especially those who had sustained a blow in the mouth, stated that they would not play hockey any more without such a device.

Conclusions

The risk of oral injury in hockey players can be greatly reduced through the wearing of a mouth protector. A well fitting appliance is comfortable, easy to retain in position, gives protection, and does not interfere with breathing or speech.

Custom-made mouth protectors, with the exception of latex appliances, are superior to other protectors in terms of all the qualities evaluated (Figures 2 and 3). Mouth-formed and external protectors are practical and economical and should be considered for these reasons.

This pilot study will be continued during the 1963-4 hockey season. Two hundred 14-21-year-old players will participate. In the meantime, we recommend external protectors for any player under 14, because of the changing dentition below this age level. The remainder will be fitted with either custom-made (soft acrylic resin or vinyl plastic vacuum formed) or mouth-formed devices.

Résumé

Les joueurs de hockey, en portant des protecteurs pour les dents, peuvent grandement diminuer les risques de blessures à la bouche. Un appareil bien ajusté est confortable et facile à maintenir en place; il protège les dents et les lèvres, sans nuire à la respiration ou à la parole.

Des protecteurs confectionnés à la pièce, à l'exception des appareils en latex, sont meilleurs que les autres. Des protecteurs faits à l'avance ou d'autres qui se portent à l'extérieur de la bouche sont aussi pratiques et ne coûtent pas cher. Pour ces deux raisons, on pourrait y songer.

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501 Tegler Building

Use of mouth protectors by British Columbia high school football players

R. J. Warshawski, D.D.S., Vancouver, British Columbia

Mouth protectors should be mandatory for football players. Dental injuries can be almost eliminated by the use of mouth protectors.

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Les protecteurs pour les dents devraient faire partie de l'équipement obligatoire de tout sport de contact, tel que le football. On peut pratiquement éliminer, avec ces protecteurs, toute blessure aux dents.

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A very successful program was carried out in the fall of 1963 whereby mouth protectors were provided for 1,200 boys who play football in the high schools of British Columbia. The project was conducted under the auspices of the British Columbia Dental Association with the co-operation of the B.C. Lions Football Club, the Dental Laboratory Association of British Columbia, and the Dentists Wives Association.

The British Columbia Dental Association wanted to convince the coaches and players through personal experience that mouth protectors should become an integral item of football equipment. The co-operation of the coaches was therefore enlisted to ensure that the appliances would be worn and that a specially prepared player reaction questionnaire would be returned.

A mouth protector in the project here described is an appliance which fits over the upper teeth in such a way as to provide protection against (1) direct frontal blows that cause fracture of the anterior teeth, (2) blows under the jaw that cause fractures of the lower jaw, or (3) blows under the jaw that cause brain damage by driving the condyle against the base of the skull.

There are three types of protectors available to football players. The stock manufactured or "Boxer" type, which consists essentially of an outer shell without any adaptation to the teeth, is entirely unacceptable in our opinion. The second type is a mouth-formed protector. It consists of a tough outer shell and an inner lining adapted to the teeth either by heating the lining or by mixing an acrylic or silicone powder and liquid. The third, the custom-made protector, we considered the best of all. This device requires an impression of the upper jaw. The appliance is then fabricated directly on the model. Custom-made mouth protectors may be made from latex, processed resilient acrylic resin, soft acrylic resin or vinyl plastic. A latex material (Gardex) was used in our project because of previous favourable experience with and moderate cost of this material.

A volunteer dentist was assigned to each of the thirty high schools with football teams. This dentist enlisted two other dentists to assist him in taking impressions. The coaches delivered their teams to selected dental offices at a specified time. The laboratory association

provided more than 50 technicians who made models immediately after the impressions were taken. The models were then delivered to the ladies of the Dentists Wives Association who fabricated the protectors. These ladies were instructed at a prior training session in the manner of handling the latex material. The finished appliances were subsequently distributed to the players together with questionnaires designed to evaluate the players' reactions. Eight hundred and five questionnaires were returned at the end of the 1963 football season. The players' responses were as follows:

	per cent
Fit	
excellent	33
good	52
fair	13
poor	2
Comfort	
excellent	17
good	38
fair	41
sore mouth	4
Speech	
normal	14
slightly muffled	66
severely muffled	18
impossible to understand	2
Durability	
remained in good condition	37
worn but usable	37
worn and replaced	5
worn but not replaced	17
no reply	4
Breathing	
unrestricted	58
slightly restricted	30
moderately restricted	10
severely restricted	2
Protection to lips, gums and teeth	
no injury	87
cut or bruised gums	5
cut lip	5
broken or chipped tooth	3
Protection against jaw and head blows	
no dizziness	67
dizzy, but conscious	28
severe dizziness	4
fully unconscious	1
Player confidence	
greatly improved	14
slightly improved	40
no difference	40
interfered with play	6
Duration worn during practice	
all the time	39
three-quarters	26
half	25
never	10
Duration worn during games	
all the time	71
three-quarters	13
half	11
never	5

Latex mouth protectors were generally well received by the players. A few players who had previously played without mouth protectors were inclined to discard them. Others, newly introduced to the game, adapted themselves much more readily to these appliances.

The level of protection achieved against traumatic injury to oral and dental structures was relatively high. Only three per cent of the players sustained broken or chipped teeth. No fractures of any kind occurred when a player wore his appliance. None of the dental injuries necessitated tooth extraction or endodontic therapy.

The coaches enforced the wearing of mouth protectors to the best of their ability. But, unfortunately, no arrangements were made for replacement of mutilated or lost appliances. Consequently the 17 per cent of appliances worn (or lost) but not replaced (Durability) detrimentally affected the percentage distribution of responses under duration for which appliances were worn during practice and during games.

Summary and conclusions

An assessment of the protective value of custom-made latex mouth protectors in 1,200 British Columbia high school football players during the 1963 football season resulted in the following conclusions: (1) dental injuries can be almost eliminated by the use of such appliances; (2) custom-made mouth protectors were judged superior to other kinds of protectors; and (3) players newly introduced to football adapt themselves much more readily to these appliances than others who have previously played without them.

Mouth protectors should be mandatory equipment in a contact sport such as football.

Résumé

On a tiré les conclusions suivantes d'observations effectuées sur le rendement de protecteurs en latex faits sur commande pour 1,200 joueurs de football de collèges de Colombie britannique: (1) on peut pratiquement éliminer, avec ces protecteurs, toute blessure aux dents; (2) des protecteurs faits sur mesure sont meilleurs que toute autre sorte; (3) les nouveaux joueurs se sont habitués plus aisément à ces protecteurs que les autres qui n'en n'avaient jamais portés.

Les protecteurs pour les dents devraient faire partie de l'équipement obligatoire de tout sport de contact, tel que le football.

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FIGURE 1 Le fauteuil dentaire aux environs de 1835 • An 1835 vintage dental chair.

Voici un système sanitaire et commode pour vider la bouche d'un patient ▪ *An effective method for evacuation of oral débris that is practical and sanitary.*

Marcel Hébert, D.D.S., Montréal, P.Qué.*

La simplification du travail en chirurgie dentaire: un crachoir fonctionnel

Le docteur G. V. Black et ses prédécesseurs avaient leurs crachoirs attachés au fauteuil dentaire (Figure 1). Au point de vue sanitaire, ces crachoirs laissaient à désirer. On y ajouta l'eau courante pour les garder propres. Et le crachoir devint un appareil fixe, inamovible et fixé au plancher. Il devint aussi fixé dans nos mœurs.

Traditionnalistes, nous avons toujours pris pour acquis que le crachoir était indispensable à l'exercice de l'art dentaire; grâce à son 'inamovibilité,' il imposait au dentiste une manière de travailler qui n'était pas toujours à son avantage.

Extrait d'une conférence prononcée au congrès annuel de l'Association dentaire de la province de Québec, tenu à l'Estérel, Co. Terrebonne, en mai 1964.

*Chargé des cours d'histoire dentaire et conférencier en administration d'exercice dentaire à la faculté dentaire de l'Université McGill; directeur de la clinique dentaire de l'Hôpital St. Mary's, Montréal.

Work simplification in dentistry: functional oral evacuation

G. V. Black and his predecessors used cuspidors that were attached to their dental chairs (Figure 1). From a sanitary standpoint these were less than satisfactory. Subsequently, when running water was added, the cuspidor was transformed into an immobile fixture attached to the floor. Thus it became a customary item of dental equipment.

By tradition dentists have always accepted the cuspidor as an indispensable item of dental practice. But because it is

Avec l'avènement des fauteuils contours, on trouva vite que cela exigeait du patient un effort considérable pour s'en servir. La succion rapide vint à la rescousse des dentistes et supplanta le crachoir.

Au point de vue psychologique, il est préférable que le patient puisse cracher au moins une fois avant son départ, même si cela n'est pas nécessaire. En effet, la pompe à salive, lorsqu'elle est reliée à la succion rapide, aspire tous les débris d'amalgame, de ciment, etc. Le patient n'a plus rien à cracher, si ce n'est sa salive. Cette pompe à salive, d'un diamètre plus gros que la pompe à salive ordinaire, est reliée à la succion rapide par un boyau flexible d'un diamètre intérieur d'un demi-pouce. Une valve (Dri-Clave) insérée sur ce boyau permet d'en contrôler le volume de succion (Figure 2).

L'appareil à succion rapide qui s'installe sur l'unité dentaire renvoie son air dans la même pièce. L'appareil portatif sur roulettes renvoie, lui aussi, son air dans la pièce. Comme cet air est aspiré de la bouche du patient, il contient à coup sûr, lorsqu'il est renvoyé dans la pièce, des bactéries indésirables. Il est donc préférable d'installer un appareil de ce genre dans un endroit d'où cet air contaminé peut être retourné à l'extérieur de l'édifice. Le bout de la pompe à salive est recouvert d'un matériel mou (silicone tip Pelvac) qui ne blesse pas le plancher de la bouche.

Cette pompe à salive est promenée sur la langue et dans la bouche à la façon d'une maîtresse de maison qui passe l'aspirateur sur un tapis. Tous les débris sont aspirés et la bouche est copieusement vaporisée d'eau pour contrebalancer la sécheresse occasionnée par la rapidité de la succion. Si une assistante se tient au fauteuil, c'est elle qui aspire les débris et qui vaporise la bouche (Figure 3).

Afin de satisfaire son besoin psychologique, le patient prend un entonnoir qui repose sur le bras gauche du fauteuil dentaire, l'attire vers lui et, sans se pencher, n'a qu'à incliner la tête en avant pour vider sa bouche (Figures 4 et 5). Une tasse de papier en forme de cône et dont le bout est coupé assure la propreté (Figure 5).

FIGURE 2 Une valve permet de contrôler le volume de la succion rapide lorsqu'une pompe à salive y est reliée • Power suction saliva ejector with a variable suction flow control.

immobile, the cuspidor imposes work patterns which do not enhance practice efficiency.

The advent of the contoured dental chair quickly showed that patients had to expend extra effort in making use of the cuspidor. Then came the vacuum suction pump which gradually supplanted the cuspidor.

From a psychological standpoint, it is preferable for the patient to expectorate at least once during a sitting, even though this may not be absolutely necessary. Actually, a power suction saliva aspirator will effectively evacuate amalgam and cement fragments from the mouth when it is connected to a vacuum suction apparatus. This type of aspirator has a wider diameter than the ordinary saliva ejector. It is connected to the vacuum suction pump by a flexible hose of one-half inch interior diameter. A valve (Dri-Clave) within the hose permits adjustment of the suction flow (Figure 2).

Vacuum suction pumps mounted within the dental unit and mobile portable suction pumps both expel returned air into the operating room. This air, coming from the patient's mouth, is bound to contain undesirable micro-organisms. It is therefore preferable to install the apparatus so that the returned air can be expelled to the exterior of the building. The tip of the saliva aspirator is also covered with a soft material (silicone tip Pelvac) which does not injure the floor of the mouth.

This aspirator is swept over the tongue and the mouth somewhat like a vacuum

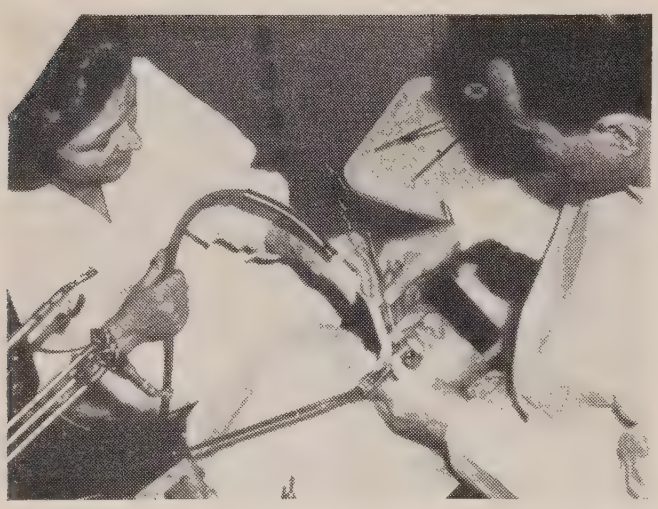

FIGURE 3 L'assistante aspire les débris. Son aspirateur est attaché sur le dossier du fauteuil lorsqu'elle ne s'en sert pas • The dental assistant aspirates oral débris. Her saliva ejector is attached to the back of the dental chair when not in use.

FIGURE 5 A remarquer l'effort que le patient doit faire pour cracher de la manière conventionnelle. • Note the effort required for conventional expectoration.

FIGURE 4 Le patient n'a qu'à pencher la tête pour vider sa bouche dans cet entonnoir-aspirateur • The patient merely inclines his head to empty his mouth into this aspirator funnel.

FIGURE 6 La tasse de papier perforée en assure une propreté parfaite pour chaque patient • A paper cup liner ensures perfect cleanliness for each patient.

En effet, cette tasse est changée à chaque patient! N'est-ce pas aussi propre (et peut-être encore plus) que le crachoir traditionnel? Un mécanicien habile peut façonner au besoin cet entonnoir. Un commutateur placé sur le support de cet entonnoir peut activer automatiquement la succion dès qu'il est soulevé.

Si le dentiste appréhende que le patient peut vomir (ce qui ne s'est jamais produit dans notre cabinet, en 17 ans), il peut garder un haricot à portée de main. Si, par hasard, le moteur refuse de fonctionner, on installe sur un robinet un syphon du genre de celui qui sert à vider l'ancienne cuvette du lavoir familial. Il n'y a donc pas d'interruption, si ce moteur nécessite une réparation.

L'adaptation du dentiste à ce système est très lente. Il doit se donner la peine d'expliquer à chacun de ses patients comment l'utiliser: "Tirez l'entonnoir vers vous, appuyez-le solidement sous votre lèvre inférieure; le bord supérieur doit presque toucher à votre nez; videz votre bouche." Il faut que le dentiste se montre confiant et ferme; il faut qu'il explique à son patient l'avantage sanitaire qu'offre ce système et le fait de n'avoir pas à se pencher pour cracher. Le patient comprend facilement la procédure et il apprécie à son mérite ce nouveau système.

Et nous, nous comprendrons facilement aussi l'économie de temps réalisée grâce à la mobilité et à la commodité de ce 'crachoir.'[1-3]

Ce n'est qu'après plusieurs mois que nous pourrons réaliser comment le patient s'est adapté: lors de son rappel, nous n'aurons aucune instruction à lui fournir. Et nous, nous aurons accompli un pas de plus vers le progrès, vers un cabinet dentaire plus fonctionnel.

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cleaner. All debris is aspirated and the mouth is copiously sprayed to counterbalance the dryness engendered by the aspiration. A chairside dental assistant, if available, can simultaneously aspirate debris and spray the mouth (Figure 3).

To satisfy the psychological requirement for expectoration, the patient takes a funnel which rests on the left arm of the dental chair, pulls it towards him, and merely inclines his head to evacuate the mouth (Figures 4 and 5). A conical paper cup with the tip cut off, placed within the funnel, assures cleanliness (Figure 5). The paper cup is changed for every patient. This arrangement is more sanitary than the traditional cuspidor. The funnel can be easily made by any skilled mechanic. A switch located on the funnel support will automatically turn the suction on and off.

A kidney basin is kept close at hand just in case a patient is likely to vomit (although the author has never experienced this eventuality during 17 years of practice). A syphon of the type used in old-style washing machines, installed on a faucet, will assure uninterrupted operation of the suction apparatus in the event of motor failure.

The dentist should adapt himself gradually to this evacuation system. He must carefully instruct each patient how to use it: "Pull the funnel towards you and press it firmly under your lower lip. The upper rim should almost touch your nose. Now empty your mouth." The dentist must be self-confident, yet firm. He should explain the sanitary advantages of this evacuation system and the fact that the patient need not expectorate. Patients will quickly understand and appreciate its merits. And dentists will also come to appreciate the saving in time that results from the mobility and convenience of this 'cuspidor.'

Only after some months' use can one really gauge how well a patient adapts himself—when he no longer requires instruction at the recall appointment. Thus we accomplish a further step toward functional dental practice.

Nouvelle technique scellant les canaux accessoires en endodontie

par Maurice M. Houde, D.D.S.

et Gérard K. Tabourian, D.D.S.,

Boston, Massachusetts

Une technique capable de sceller les canaux accessoires est décrite. Dans les traitements combinés des lésions pulpo-péridentaires, c'est une méthode de choix, supérieure aux différentes autres techniques conventionnelles. Dans la thérapie radiculaire simple, elle assure un meilleur scellement de l'apex et élimine le problème éventuel des canaux accessoires comme facteur d'échec. Si tous les canaux radiculaires ne peuvent être décelés, nous pensons que tous les canaux et canalicules peuvent être scellés afin d'assurer un meilleur succès dans nos traitements radiculaires.

▪

Pulpal and periodontal disturbance in the same tooth may be correlated. Accessory root canals allow infection to spread from the pulp to the periodontal membrane, and vice versa. Imperfectly filled accessory canals permit the spread of infection from the root canal to the periodontal membrane following conventional endodontic therapy. This can be prevented by giving the root canal a conical shape, blocking the apical portion with a tightly fitting silver point, and filling the remainder of the canal with a plastic filling material inserted under pressure.

Les techniques courantes d'obturation du ou des canaux radiculaires tendent principalement à un scellement hermétique de l'apex sans trop se préoccuper des canaux latéraux accessoires ou aberrants.

La présence de ces canalicules dans l'anatomie radiculaire, bien mise en évidence par les travaux de Hess,[1] Sicher,[2] Orban,[3] soulève le problème de la signification et de l'importance du scellement de ces canaux secondaires.

Orban avait souligné le problème des canaux accessoires dans le traitement radiculaire comme jouant un rôle important dans le succès final du traitement. La présence de ces canaux sur les radiographies n'est pas apparente et semble être négligée dans la thérapie radiculaire. Ces canaux accessoires peuvent être soit infectés et causer une récidive de l'inflammation, soit en communication avec le périodonte (canaux latéraux), soit encore localisés dans la bifurcation des racines.

Forsyth Dental Center, Harvard School of Dental Medicine, Boston.

L'importance de sceller les canaux latéraux en communication avec le périodonte dans le traitement des lésions pulpo-péridentaires s'affirme désirable pour assurer un pourcentage plus élevé de traitements réussis. Ceci à la lumière des travaux récents de Seltzer et Bender[4] qui montrent que la présence des canaux latéraux se traduit souvent par des échanges entre la pulpe et le périodonte. Ces auteurs, coupes histologiques à l'appui, concluent que l'état de santé du périodonte peut influencer la pulpe et, qu'inversement, la maladie pulpaire peut affecter le degré de gravité de la lésion péridentaire.

Simring et Goldberg,[5] à leur tour, soulignent l'importance de l'oblitération complète des canaux latéraux dans le traitement des périodontites rétrogrades.

Biddington[6] considère que l'intimité des tissus pulpaires et péridentaires nécessitent souvent une thérapie combinée. Enfin, tout récemment, le congrès de l'Association américaine des périodontistes, à Swampscoot, Mass., accordait une attention particulière aux traitements combinés des lésions pulpo-péridentaires.

D'éminents conférenciers tels que Schilder, Stahl, et Hiatt reconnaissaient tout à tour que l'état de santé du périodonte peut influencer l'intégrité de la pulpe et qu'inversement la pulpe peut affecter le périodonte probablement via les canaux latéraux.

D'où il ressort qu'une technique capable de sceller en même temps l'apex et les canaux accessoires est certainement désirable surtout dans les traitements combinés pulpo-péridentaires ou en présence de foyers résiduels infectieux émanant de ces canalicules. Cet article se propose de décrire une technique pour obturer les canaux aberrants. Elle peut être employée couramment dans tous les traitements radiculaires simples ou combinés à des traitements péridentaires. De nombreux traitements considérés comme des échecs et référés à notre département d'endodontie furent traités par cette technique qui assure un succès, là où les techniques courantes d'obturation avaient échoué.

Les figures 1 et 2 montrent l'anatomie de différents canaux radiculaires comportant des canaux accessoires.

Préparation du canal

Au point de vue 'modus operandi,' la thérapie radiculaire se divise en trois phases: la préparation biomécanique, le contrôle microbien, l'obturation du canal radiculaire. Cet article ne traite que de la préparation et du scellement radiculaire. La médication ainsi que la résection radiculaire qui ont été l'objet de recherches intenses sont ici laissées de côté.

Le but de la présente technique est la préparation d'un canal radiculaire apte à recevoir une tige d'argent scellant seulement les derniers millimètres apicaux et qui permet par la suite le scellement de tous les canaux radiculaires accessoires. L'accès vers la pulpe se fait par les méthodes conventionnelles. La première broche est introduite à l'apex sous contrôle radiographique. Seules, les broches employées dans cette technique atteignent l'apex. Leur unique but est de former un apex conique épousant exactement la forme de la pointe d'argent qui effectue par la suite le scellement radiculaire apical. L'élargissement, le débridement, ou l'arrondissement des parois du canal se font à l'aide des limes. Celles-ci ne sont jamais introduites jusqu'à l'apex.

L'exemple d'une monoradiculaire illustre ce point. Après avoir introduit le premier instrument jusqu'à l'apex sous contrôle radiographique, on commence la taille d'un apex conique.

Le diamètre de la broche est augmenté aussitôt que la précédente n'engage plus les parois, et, suivant le diamètre original de la dent, l'opérateur juge l'agrandissement nécessaire à y apporter. Il est important d'irriguer constamment le canal avec de l'hypochlorite de sodium en alternant avec le peroxyde d'hydrogène afin de débrider complètement le canal et faciliter le nettoyage mécanique.

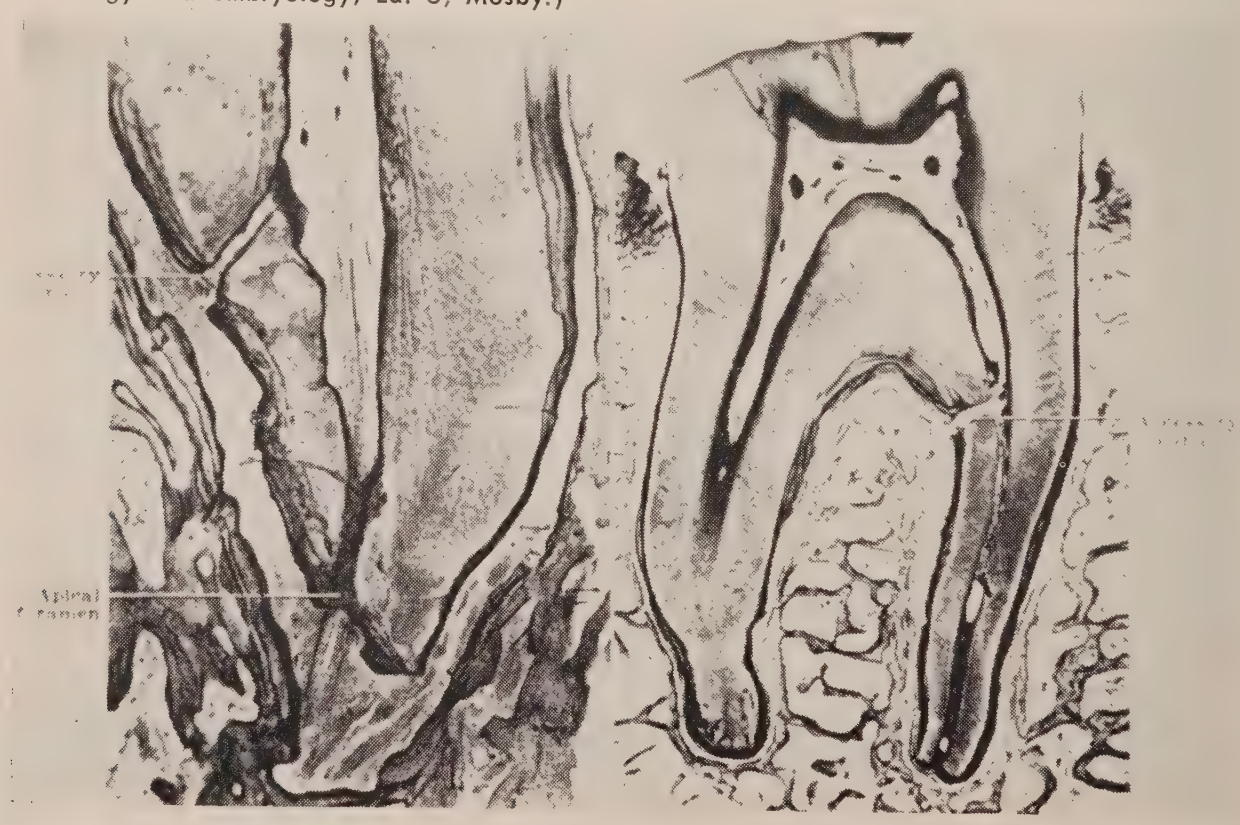
L'opérateur passe maintenant des

FIGURE 1 Schéma montrant différents types de canaux accessoires. A. Prémolaire inférieure. B et C. Prémolaires supérieures. (D'après Sicher et Tandler: "Anatomie für Zahnärzte," dans Oral anatomy, Ed. 3, Mosby.)

broches aux limes. La première utilisée est d'un diamètre plus petit que la dernière broche introduite jusqu'à l'apex. Ainsi, une broche Kerr numéro 5 est suivie d'une lime Kerr numéro 4 et ainsi de suite. De plus, sa longueur est réduite de deux millimètres. Ceci est important pour obtenir un canal conique dont le diamètre ira en s'agrandissant occlusalement. Cette conicité permet une évacuation occlusale ou incisive de la pâte à canaux et prévient ainsi un déplacement apical vers les tissus péridentaires. Comme le canal est rempli de pâte à l'aide d'un bourre-pâte de Lentulo avant l'insertion de la pointe, un canal plutôt cylindrique favoriserait un déplacement apical, la pointe agissant à la façon d'un piston dans un cylindre.

Lorsque la première lime fait voir des débris de dentine fraîche, indiquant que le tissu pulpaire ou la prédentine a été enlevé, une autre lime d'un diamètre

FIGURE 2 Coupe histologique montrant la présence de canaux accessoires (D'après Sicher: Orban's oral histology and embryology, Ed. 5, Mosby.)



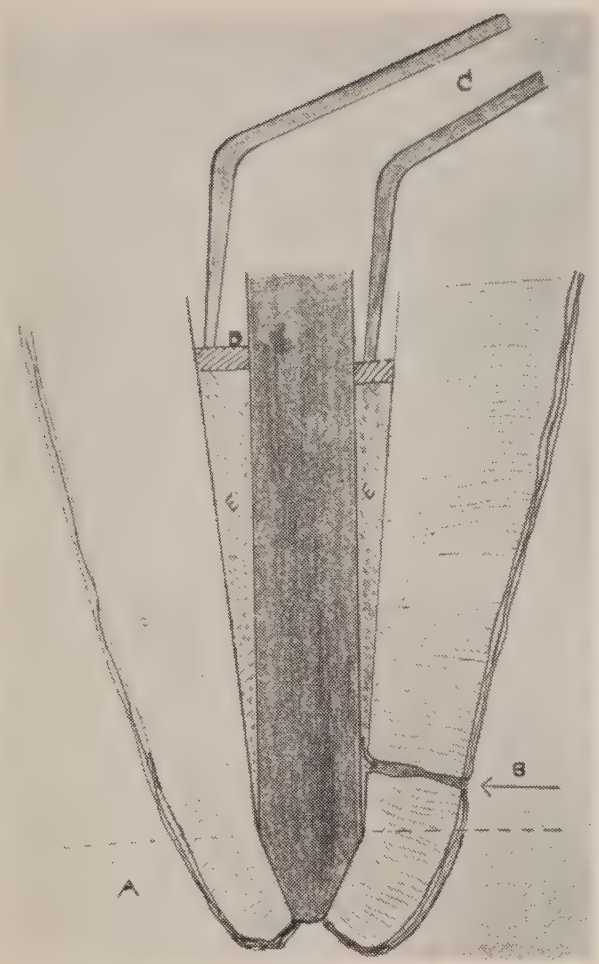


FIGURE 3 Schéma montrant le scellement d'un canal latéral dans une dent monoradiculaire. A. Apex rendu conique. B. Canal latéral scellé. C. Fouloirs. D. Bouchon de gutta-percha. E. Ciment de Kerr.

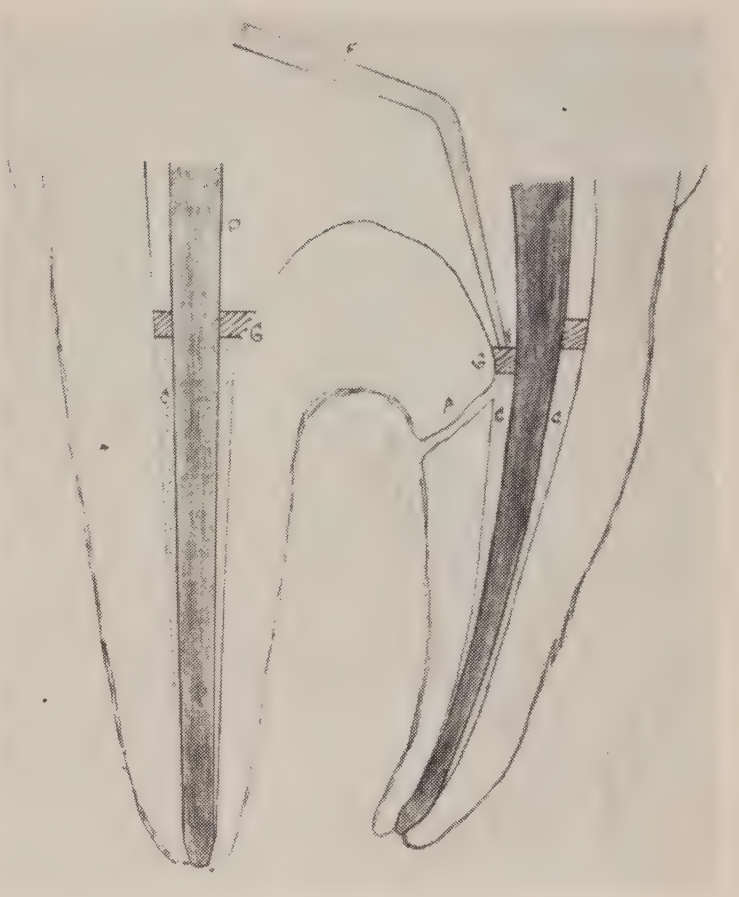


FIGURE 4 Schéma montrant le scellement d'un canal latéral dans une molaire. P. Pointe d'argent. G. Bouchon de gutta-percha. F. Fouloir. C. Ciment de Kerr remplissant le canal. A. Canal latéral scellé.

supérieur est employée. Celle-ci voit aussi son diamètre raccourci d'une longueur de deux millimètres. Cette procédure est répétée jusqu'à l'obtention d'un cône à grand diamètre incisif ou occlusal. Les schémas aident à visualiser le but de la procédure (Figure 3).

L'apex de ce canal a pris la forme de la dernière broche (Figure 3,A). La pointe d'argent qui sert au scellement est donc du même diamètre. La forme apicale laissée par la broche est à noter et c'est à cet endroit que s'effectue le scellement apical: dans les derniers millimètres radiculaires.

Scellement du canal

Une fois la préparation biomécanique terminée et le contrôle bactériologique effectué, le canal est maintenant prêt pour le scellement. Une pointe d'argent ayant le même diamètre que la dernière broche est choisie. Elle est introduite dans le canal avec une pince hémostatique sous une pression aussi grande que possible. Ceci afin de sceller l'apex d'une façon que nous considérons plus satisfaisante que l'emploi des pointes de gutta-percha sur lesquelles on ne peut pas exercer une forte pression, essentielle à un bon scellement, sans qu'elles ne plient ou se déforment. A ce titre, nous ne partageons par l'opinion de Luks,[7] qui élimine les pointes d'argent comme matériel d'obturation en faveur du gutta-percha tel qu'employé dans sa technique. A cette étape, une radiographie de contrôle est prise pour vérifier la position de la pointe d'argent Une fois cette condition satisfaite, la pointe d'argent est retirée du canal et

l'opérateur est maintenant prêt au scellement final du canal. Si la pointe d'argent est bien ajustée, l'opérateur doit rencontrer une résistance en la retirant du canal.

Le ciment Kerr sert de pâte obturatrice. Ce dernier ne rétrécit pas durant le durcissement comme certaines pâtes à canaux dont l'une a connu récemment une grande popularité. Il est bien toléré par les tissus apicaux et péridentaires; en plus, les fluides apicaux ne le dissolvent pas. A l'aide d'un bourre-pâte de 'Lentulo,' ce ciment à canaux est introduit dans le canal et dirigé vers l'apex par un mouvement rotatif. Seul, le bout du lentulo sert à insérer la pâte. Un montant suffisant pour remplir tout le canal après insertion de la pointe est nécessaire. (Figure 4,C).

Une fois le canal rempli, la même pointe d'argent, préalablement ajustée jusqu'à l'apex sous contrôle radiographique, est introduite soigneusement avec des mouvements de va et vient dans l'axe longitudinal de la dent de façon à permettre à la pâte de se déplacer occlusalement ou incisivement. C'est ici que s'avère l'importance de la conicité du canal (Figures 3 et 4). Un canal cylindrique ne permettrait pas un déplacement coronaire de la pâte. C'est le but des limes de former cette conicité et c'est pourquoi elles sont raccourcies de deux millimètres à mesure que leur diamètre augmente.

La pointe d'argent est ainsi replacée dans la même position que précédemment et avec autant de pression que possible. Le canal est maintenant scellé à l'apex et la tige ne contacte le canal qu'à cet endroit. (Figure 3,A).

Vient maintenant le scellement de tous les autres canaux (Figures 1 et 2) tel que décrit au début. Les autres méthodes sont basées sur l'assomption qu'il n'y a qu'une communication pulpo-péridentaire. Les radiographies accompagnant cet article montrent qu'il n'en est pas toujours de même (Figure 5).

Scellement des canaux latéraux

Prenons comme analogie pour mieux illustrer ce qui va suivre le cas d'une seringue contenant une carpule anesthésique. Sous pression, le liquide n'a qu'un endroit d'échappement: l'aiguille. Le même principe est employé ici, mais avec une variation. Le canal contient maintenant, après le traitement précédent,

FIGURE 5 Radiographie d'une incisive centrale avec canal latéral scellé. A noter le confinement du ciment.

FIGURE 6 Radiographie d'une molaire avec scellement d'un canal latéral situé dans la bifurcation et responsable de la formation d'un clapier.

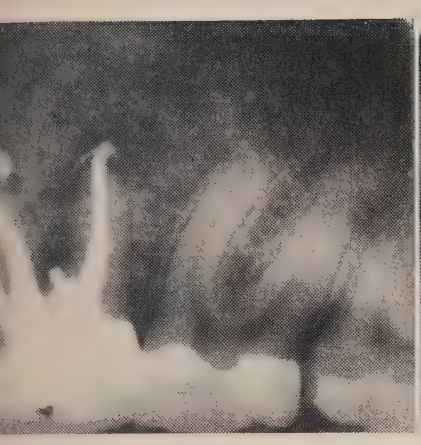
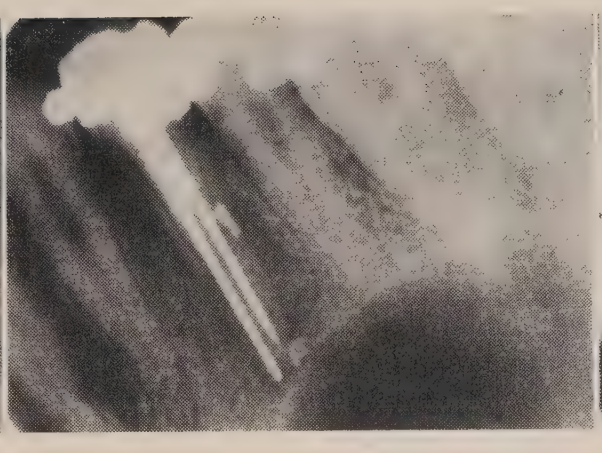
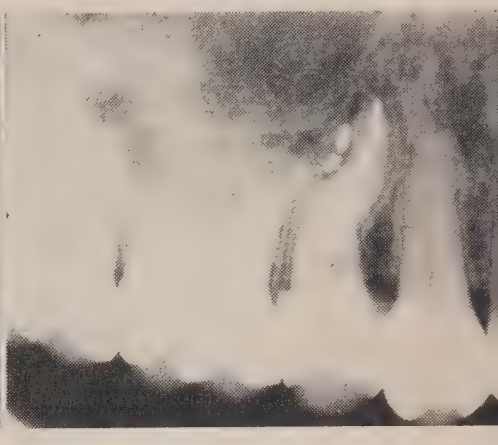


FIGURE 7 Radiographie d'une molaire montrant le scellement de tous les canaux latéraux.





FIGURES 8 et 9. Radiographies montrant deux prémolaires avec canaux latéraux scellés.

une pointe d'argent introduite sous pression et qui ne contacte et ne scelle que les derniers millimètres du canal. Entre la pointe d'argent et la paroi dentinaire, se trouve la pâte de Kerr, comme l'indique la Figure 3.

Une pointe de gutta-percha est chauffée sur une flamme légère de façon à en former une masse de nature plastique. Ce gutta-percha ramolli par la chaleur est premièrement placé tout autour de la pointe d'argent, dans la partie incisive. A l'aide de fouloirs (Figures 3 et 4) elle est compressée apicalement de façon à former une barrière empêchant tout échappement incisif ou occlusal de la pâte, de la même façon qu'un bouchon de caoutchouc scelle une carpule anesthésique. Ce gutta-percha est compressé à l'aide de fouloirs avec autant de force que possible. (Figures 3 et 4). La pâte, sous pression, s'introduit alors dans tous les canaux accessoires de la dent et les scelle hermétiquement (Figure 5).

Dans les cas de résorption interne, cette technique donne d'excellents résultats. De même, des perforations accidentelles du plancher pulpaire ou radiculaire peuvent être obturées d'une façon compatible avec la survie de la dent dans un milieu péridentaire sain.

Il est remarquable de noter sur les radiographies le confinement de la pâte à l'intérieur des canaux accessoires. L'extrusion de cette pâte dans le périodonte dans certains cas où les canaux accessoires atteignent une grande dimension est compatible avec une guérison et ne s'est pas avérée irritante pour les tissus environnants.

La figure 6 illustre une poche péridentaire située dans la bifurcation des racines d'une molaire causée par un canal accessoire. Une description schématique (Figures 3 et 4) montre le scellement d'un tel canalicule par cette technique.

Les dents dévitalisées qui, par la suite, devront recevoir un corps coulé ne présentent aucun inconvénient à l'emploi d'une tige d'argent. Celle-ci est préablement encochée au tiers apical à l'aide d'une fraise ronde tournant à grande vitesse de façon à former un point faible dans sa longueur et sera détachée de sa partie apicale lors du scellement final par un léger mouvement de rotation.

Un bouchon de gutta-percha est placé de la même façon que décrit précédemment et la pâte à canaux est comprimée par pression sur ce bouchon à l'aide d'un fouloir.

La chambre pulpaire est ensuite soigneusement nettoyée à l'aide d'un solvant, comme le chloroforme, de façon à dissoudre toute trace de ciment qui pourrait décolorer la couronne de la dent.

La dent est finalement remplie de 'Cavit' qui sert d'obturation temporaire jusqu'au placement d'une obturation permanente qui doit être faite dans le plus bref délai possible.

La figure 7 montre une molaire avec des canaux latéraux qui furent scellés par cette technique. Les figures 8 et 9 font voir les mêmes résultats sur des prémolaires.

Conclusion

Une technique capable de sceller les canaux accessoires a été décrite. Dans les traitements combinés des lésions pulpo-péridentaires, c'est une méthode de choix, supérieure aux différentes autres techniques conventionnelles. Dans la thérapie radiculaire simple, elle assure un meilleur scellement de l'apex et élimine le problème éventuel des canaux accessoires comme facteur d'échec.

Si tous les canaux radiculaires ne peuvent être décelés, comme l'affirme Roy dans une de ses boutades citées dans Marmasse,[8] nous pensons que tous les canaux et canalicules peuvent être scellés afin d'assurer un meilleur succès dans nos traitements radiculaires.

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Forsyth Dental Center

La langue française dans le monde. • Saviez-vous que le Français occupe aujourd'hui le quatrième rang en Europe par le nombre d'habitants: environ 55 millions de Français, Belges, Suisses, Luxembourgeois et Valdotains (Italiens de la Vallée d'Aoste); le quatrième rang en Amérique avec près de 11 millions de franco-phones, dont environ 6 millions au Canada et 3.5 en Haïti; enfin, le deuxième rang à l'Organisation des Nations-unies derrière l'Anglais. — Jacques Capelovici, Revue de la Confédération des Travailleurs Intellectuels.

men and times

Dentistry in Quebec prior to 1869

C. C. Bourne, Montreal, P. Quebec*

Sometimes we are led to believe that, prior to the act of incorporation of the Dental Association of the Province of Quebec on April 4, 1869, utter chaos prevailed in Quebec dentistry. It is true that there was little or no organization, but there was some order and considerable skill.

Frequently it is stated that an almanac exists of the year 1691 which lists nine men as Drawers of teeth and Bloodletters in New France. When Stephen Globensky of Montreal was president of the Board of Examiners of the Dental Association of the Province of Quebec in 1893, a short account of his life appeared in the *Dominion Dental Journal*[1] which ends with this paragraph:

"During the French occupation of Canada, the great-grandfather of Dr. Globensky was a distinguished army surgeon, and after 1760 remained to practise in the city of Quebec. In an old almanac he was classified, not only as a general surgeon, but as a specialist under the title of 'Blood Letter and Tooth Drawer,' . . . The President of the Board may therefore be regarded as the lineal descendant of one who was perhaps the earliest dentist of Canada."

Poitras[2] mentions an American dentist who practised in Quebec City in 1815. A native of Braintree, Vermont, Levi Spear Parmly was trained in Boston. In 1815 he left that city, intending at first to go to Montreal. Dissuaded from this course, Parmly moved instead to Quebec City, accompanied by his younger brother Eleazar who became his student and assistant. The older Parmly remained in Quebec for one year but his younger brother practised in that city for two years.

Although the older Parmly was well trained by Boston standards, the brothers witnessed their first gold foil restoration while they were in Quebec. This was the work of Waite, a visiting dentist from London. Evidently very few European or American dentists employed gold foil at the time. The brothers' work consisted of extracting teeth with a turnkey; cleaning teeth with scrapers; separating teeth and removing carious substance with files; restoring teeth with tin foil; carving artificial dentures from ivory and bone and individual artificial teeth from the teeth of cattle; and attaching the latter as well as human teeth to gold and silver plates adapted to the required form.

*Visiting lecturer in history of dentistry, Faculty of Dentistry, McGill University, Montreal.

While in Quebec, Levi Spear Parmly wrote a popular dental text entitled *The Summum Bonum.* Published by J. Neilson, a copy of this book is in the Montreal Public Library's Gagnon Collection. It was the first of a long series of popular dental texts written by Parmly. Often entitled "Natural history of the teeth," the main theme of these books was that tooth decay progresses from without inwards and that a clean tooth never decays.

After leaving Quebec City, the younger Parmly travelled extensively and later settled in New York. There, in 1834, he organized the first known dental society in the world, "The Society of Surgeon Dentists of the City and State of New York." By his rigid attitude in the subsequent "Amalgam War" he shattered this society. But in 1840 both brothers assisted in the formation of the American Society of Dental Surgeons. Both were granted honorary doctorate degrees by the Baltimore College of Dental Surgery in 1842.

The next item is mentioned in the eleventh edition of the Encyclopaedia Britannica.[3] It concerns another early Quebec dentist, J. R. Spooner of Montreal:

". . . The utility of arsenious acid for devitalizing the dental pulp was discovered by J. R. Spooner of Montreal, and first published in 1836 by his brother Shearjashub in his *Guide to Sound Teeth.* The painful action of arsenic upon the pulp was avoided by the addition of various sedative drugs—morphia atropia, iodoform, etc.,—and its use soon became universal . . ."

This treatment, now outmoded, was used almost universally for many years up to the time of the First World War. Probably no dental treatment devised by a Quebecer has caused so much controversy over the years as this now forgotten procedure.

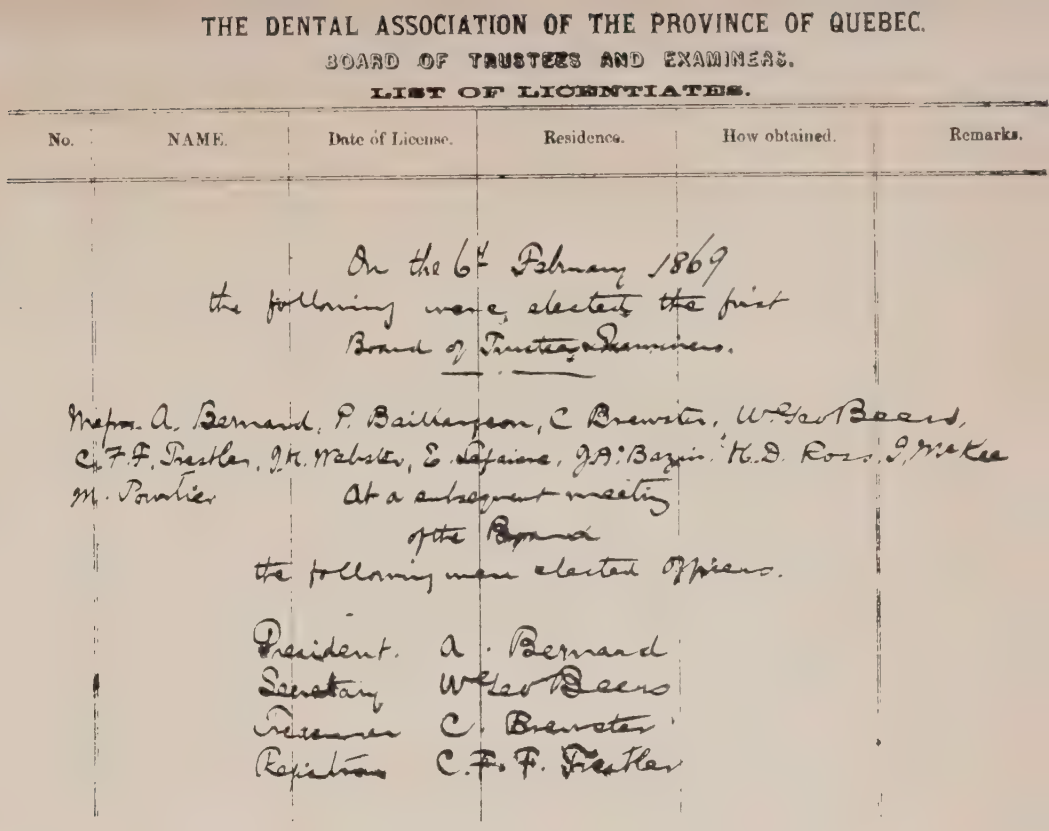
Not only did J. R. Spooner introduce the first successful devitalizing procedure but he made porcelain teeth prior to 1836. The usual credit for developing porcelain teeth in America is given to Wildman of Philadelphia in 1838. This probably refers to the date when porcelain teeth were first offered freely for sale. But it is definitely known that Spooner's teeth had limited circulation at an earlier date. The *Dominion Dental Journal* of May 1892[4] quotes Shearjashub Spooner as follows:

"To mention the names of those individuals who, in our opinion, manufacture mineral teeth in the greatest perfection, might appear invidious, and is wholly unnecessary, as those interested will judge for themselves; yet we hope we may be allowed the indulgence of saying, without trespassing on the limits of modesty, or infringing upon the privileges or merits of any individual, that, in our candid judgement, the teeth which possess all the requisite qualities before mentioned, in the greatest perfection, are Spooner's mineral teeth, invented by Dr. J. R. Spooner, of Montreal, by a long series of indefatigable, laborious and expensive experiments. Many specimens of these teeth have been exhibited in New York, and many of them inserted by different dentists in the State, yet the process of manufacturing has been so tedious and expensive that they have not been offered in the market for general use."

By 1844 there were six practising dentists in the Montreal area: Bernard, Nichols, Pawn, Rose, Scriptune and William Spooner. The latter is a different Spooner to the one mentioned previously.

In 1844 A. Bernard tried to have the profession of dentistry incorporated in the Province of Quebec. At the time there was a medical bill before the legislature and Bernard sought to have a clause inserted regulating the practice of dentistry. He, with others, went before a committee of the legislature, and secured all they wanted. The bill was to come before the full House on the following day. But on that day the Government Buidings were destroyed by fire and the papers were lost.[5] Twenty-five years later Bernard assisted in the successful organization of the profession. In 1873 he became mayor of Montreal.

Charles Frederick Ferdinand Trestler,[6] educated at the Collège de Montréal, studied medicine under J. B. C. Trestler, his father, and J. G. Bidaud. The younger



THE DENTAL ASSOCIATION OF THE PROVINCE OF QUEBEC.

BOARD OF TRUSTEES AND EXAMINERS.

LIST OF LICENTIATES.

No.	NAME.	Date of License.	Residence.	How obtained.	Remarks.

On the 6th February 1869
the following were elected the first
Board of Trustees Examiners.

Wm. A. Bernard, P. Baillargeon, C. Brewster, W. Geo. Beers,
C. F. F. Trestler, J. H. Webster, E. Lafaine, J. B. Bazin, H. D. Ross, J. McKee
M. Poudrier. At a subsequent meeting
of the Board
the following were elected Officers.

President. A. Bernard
Secretary W. Geo. Beers
Treasurer C. Brewster
Registrar C. F. F. Trestler

Members of the first Board of Trustees and Examiners and the original officers of the Board of the Dental Association of the Province of Quebec, February 6, 1869.

Trestler was admitted to the practice of medicine in 1852. He followed this profession for a certain time and then went to New York to study dentistry under Barlow. Trestler returned to Montreal in 1857 and practised dentistry, specializing in dental surgery. It is hard to separate the activities of the members of Trestler family. They are collectively referred to as Trestler and Bros. Even W. G. Beers mentions holding meetings at the office of Trestler Bros.

C. F. F. Trestler later was president for several years of the Dental Association of the Province of Quebec.

J. A. Bazin, another Montreal dentist, had this to say in a biographical sketch entitled "Yesterday," published in the *Dominion Dental Journal* of May 1892:[7]

"Entering the profession in 1852, at Boston, ignorant of its scope or condition, my environment very circumscribed, I was as a man in a thick woods, with no guide. Having a mechanical training for many years, I soon became of value to my preceptor 'at the bench,' doing things in a mechanical way, but not badly, for the rule of the office was to do 'honest work.' My horizon bounded by the walls of the office, with occasional visits to the dental depot of Jones, White and McCurdy . . .

"These visits to the dental depot were like an exchange or board of trade. There we met, talked with or listened to older and wiser than we, consulted as to special cases, often saw work from other offices, and were stimulated to excel. They were as seeds to the society and convention movements that have since become so common.

". . . Gum teeth were beginning to appear upon the market, in unfading colour, 'rose pink' and 'purple of cassius' giving way to the preparations of gold now in use. Well do I remember the fear and trembling with which we heated up and soldered a piece, not knowing whether the gum would disappear and leave a smoky brown in its place.

". . . In our office a rocker on a platform was in daily use, and I remember with what open-mouth wonder we examined the new 'White' chair, with its tip back and raising seat. Abbey's soft foil was the standard, and very durable work was done with it . . .

". . . It was my fortune in '54 to be engaged by Dr. J. A. Cummings, and to see the 'Yankee Baker,' in which his experiments in vulcanite, which resulted in his obtaining those patents that became so obnoxious to the dentists of the States were made. This engagement terminated because I protested against the dishonest method of filling the spaces between the teeth and plate in gold work with melted sulphur.

"In '55 I came to Montreal, entering the office of Dr. Bernard, he wishing to give his patients the improvements of the time in carving and continuous gum work.

". . . Here in Montreal was Dr. W. H. Elliot . . . whose results with Abbey's foil would astonish you. Harwood and the Tuckers', of Boston, and Wetherbee, were a quartette that were representative of those to be found in all the cities, striving to give the best possible.

"When I first came to Montreal, there were six dentists having offices at that time in Montreal, only three of whom had furnaces for baking teeth — Elliot, Dickinson and Webster. But in a few days we had one set up, and the most modern equipment in the city . . . In May or June (of 1857) Dr.

Trestler returned from New York, and opened office in Notre Dame Street, near the square, bringing with him a very excellent workman in gold, etc. Within another year Dr. Young, father of the present Dr. Young, opened two doors away, east, from Dr. Trestler. My intercourse from that time to this with Dr. Trestler has been of the most cordial kind; his geniality is ever fresh. It would take a night and a day to detail the many remembrances that crowd upon me . . .

"In that same year Dr. Webster suffered a great and terrible loss in the death of two sons, who were perfecting themselves in dentistry in New York and were home for the holidays; they, with three other excellent young men of the city, being drowned by the capsizing of a yacht in Lake Champlain.

". . . Dr. C. Brewster became partner with his preceptor, Dickinson, in 1857, who lived only about a year, leaving W. G. Beers as student in the office.

". . . All this time improvements were going on in small as well as great things. Vulcanite as a base began to invade continuous gum, as well as gold work (in 1859 or 1860) and right here I would affirm that it has developed more careless, slovenly work and mal-adjustment, as well as being of immense benefit to the poor, than any other change in method or material that I know of . . ."

Probably W. George Beers[8] did more for dentistry in Canada than any other dentist to this date. But most of this was after 1869, and we are discussing what happened before that date. Born in 1843, in Montreal, educated at Lower Canada College and Phillips School of this city, he was first trained in the office of C. M. Dickinson, then in the office of C. Brewster. Beers worked under these preceptors until 1865 when he set up his own office. One of his major achievements occurred in 1868, when he founded the *Canada Journal of Dental Science.* This was the first real Canadian dental magazine. Beers was author and publisher of this journal. Of course, other dentists helped. C. S. Chittenden of Hamilton and R. Trotter of Guelph were also editors.

Beers faithfully recorded the various meetings in his magazine. This magazine was somewhat like the modern newspaper, reminding the profession of what had been done, and fostering confidence by mentioning well known names whenever possible.

The first eleven licentiates of the Dental Association of the Province of Quebec received their licences by act of incorporation, April 5, 1869.

THE DENTAL ASSOCIATION OF THE PROVINCE OF QUEBEC.

BOARD OF TRUSTEES AND EXAMINERS.

LIST OF LICENTIATES.

No.	NAME.	Date of License.	Residence.	How obtained.	Remarks.
1	A. Bernard	5 April 1869	Montreal	By act of Incorporation	Member Dead
2	P. Baillargeon M.D.	do	Quebec	do	Dead 5 1891
3	C. Brewster	do	Montreal	do	Retired Dead 1891 05
4	W. Geo Beers	do	do	do	Dead
5	C. F. F. Trestler M.D.	do	do	do	Died Sept 3rd 15
6	J. H. Webster	do	do	do	Dead
7	E. Lefaivre	do	St Johns	do	Dead
8	J. B. Bazin	do	Montreal	do	Dead
9	T. D. Roe	do	Quebec	do	Dead
10	G. McKee	do	do	do	Dead
11	M. Bourbeau	do	do	do	Dead

Thus, on September 2, 1868, a meeting was hastily convened in Montreal to take advantage of the presence of several visiting Ontario dentists who were attending the Canadian Medical Association convention. These men, among them Dr. Scott, secretary of the Ontario Dental Association, explained how Ontario dentists had become incorporated that year and suggested methods of avoiding difficulties. Bernard was appointed chairman and Beers was named secretary of the Quebec group. Bernard explained the objective of the meeting: to organize a dental association for the Province of Quebec with objects and intent similar to that of Ontario. Resolutions favouring the project were passed and a meeting of all Quebec dentists was scheduled in Montreal for September 17. Purpose of this meeting was to adopt a constitution, by-laws, and an act of incorporation, and to elect a provisional board of officers.

The draft constitution was not ready by September 17, but a board of officers was elected at this meeting instead. Named as officers were A. Bernard of Montreal, president; P. Baillargeon of Quebec City, first vice-president; C. F. F. Trestler of Montreal, second vice-president; W. G. Beers of Montreal, secretary; C. Brewster of Montreal, treasurer; and J. A. Bazin of Montreal, librarian. McKee, Lefaivre, Webster and Leblanc were named to the executive committee. The committee previously appointed to draw up a constitution was discharged. Instead, the newly appointed officers were instructed to draft a constitution and by-laws and an act of incorporation. Copies of both documents printed in French and in English were to be circulated prior to a further meeting scheduled for October 28.

The draft constitution received clause-by-clause consideration on October 28.[9] This meeting was held at the residence of Dr. Bernard in Montreal. Present at that time were Bernard, Brewster, Bazin, Leblanc, Davis, Alloway, Mathieu, Chase and Beers of Montreal; McKee of Quebec City; Lefaivre of St. Johns; Brodeur of St. Hyacinthe; as well as two members of the legislature, Messrs. Ed. Carter and A. W. Ogilvie of Montreal, and a Mr. A. A. Stevenson. The resulting "Constitution of the Dental Association of the Province of Quebec, adopted Oct. 29, 1868—Constitution DE LA SOCIETE ODONTOTECHNIQUE DE LA PROVINCE DE QUEBEC, ADOPTE LE 29 OCT. 1868" may now be found at the Université de Montréal in the form of two leaflets bound with Volume 1-2 of the *Canada Journal of Dental Science* (1868-70).

A further meeting was held on February 6, 1869, before the passing of the act of incorporation.[9] At this time the following were elected the first Board of Trustees and Examiners: A. Bernard, P. Baillargeon, C. Brewster, W. G. Beers, C. F. F. Trestler, J. H. Webster, E. Lefaivre, J. A. Bazin, H. D. Ross, F. McKee and M. Pourtier. These eleven dentists received their licences, dated April 5, 1869, by act of the Quebec legislature.

At a subsequent meeting of the Board on April 20, the following were elected officers: A. Bernard, president; W. G. Beers, secretary; C. Brewster, treasurer; and C. F. F. Trestler, registrar.

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1414 Drummond Street

Comes the third season

Autumn in Canada is usually a time of gentle moods and calm reflections, of vivid scarlet and gold trees mirrored in the cool waters of some quiet forest-girt lake, of gentle winds that bear the scent of wood smoke and burning leaves. It is also the time to offer thanks for nature's bounty, a time for preparation against the coming rigours of winter. When halcyon days of summer are gone, young and old address themselves once more to familiar daily tasks with renewed vigour. Little children come to school for the first time. Some are brash, some are timid, but all are wide-eyed with wonderment and expectation of the strange new world of chalk and blackboard. Their older brothers and sisters, more boisterous perhaps and yet more blasé withal, inwardly groan at having to return to the discipline of the classroom, yet jubilate over the prospect of impending football and hockey games as well as the camaraderie that these encounters breed. For in schools and colleges across the land coaches are now preparing their teams for the season that lies ahead. And there can be no doubt that these two sports have become a most popular national outdoor pastime for players as well as spectators.

But whenever a boy participates in a contact sport such as football or hockey, there is a risk of injury that casts a shadow over the pleasure that an increasing number of people derive from this type of athletic activity. Many of these injuries affect the mouth and teeth. They are therefore of particular concern to the dentist. Because of the serious nature of such injuries, athletic authorities and dentists have pooled their talents to devise means of reducing this risk and minimizing resultant injury. One outcome has been the development of mouth protectors — devices that promise to protect players from experiencing the dental injuries which affected so many in the past.

Three basic types of intra-oral mouth protectors are now available: the custom-made type, a mouth-formed type, and a stock or ready-to-wear type. The custom-made protector is generally considered superior to the other types. However, more procedures are required in making this kind of protector. More dentist time is required since an impression of the upper jaw must be taken. The material is then fabricated on the cast. Finally, the protector must be fitted to the player's teeth. Thus cost in dental time and money is higher for this device. An exception is the latex mouth protector which, although lower in cost, is also less durable than other custom-made protectors. The mouth-formed protector, which rates second-best, requires less dentist time, and all necessary fitting procedures are accomplished at one sitting. Ready-to-wear stock type protectors, on the other hand, have apparently proven to be universally unsatisfactory. Of considerable interest, also, is an external protector developed for hockey players. This device is worn outside the mouth, attached to a helmet. This protector will serve season after season regardless of changes occurring in the player's dentition.

In this issue of the Journal Doctors Blackburn and Warshawski describe two highly successful mouth protector programs carried out at the community level. Other dental societies have embarked on

similar programs. Some have donated their services freely. Others have collaborated with non-dental organizations to provide these appliances. But many societies have yet to contribute to this form of public service.

By co-operating to the fullest extent with school authorities in making mouth protectors available to the members of their football and hockey teams, dentists can again demonstrate their desire to improve the well-being of members of their communities.

1. People who habitually eat the *New York Times* need not expect the consequent damage to be aggravated by the drinking of fluoridated water.

2. People who habitually drink fluoridated water need not be unduly afraid of eating the *New York Times.*"

Undaunted by either experiment, New York City is making plans to fluoridate in 1965 — with the editorial support of the *New York Times.*

American Dental Association. Fluoridation Reporter. May-June 1964. Reprinted by permission.

. . . It's safe to eat the New York Times

England's public health officers may still be laughing at their journal's treatment of a paid anti-fluoridation advertisement which appeared in the *New York Times* when that city was considering fluoridation.

This advertisement cited as "positive proof" of the danger of fluoridation an experiment in which you place a piece of paper in a glass of fluoridated water and "see it become a metallic substance of corrosive, inorganic, accumulative poison."

Public Health, the journal of the Society of Medical Officers of Health in England, made the following report on this advertisement in the March 1964 issue:

"In the interests of science . . . a clipping from the *New York Times* was placed in a glass of fluoridated water . . . . We have to report that it has not, as yet, 'become a metallic substance of corrosive, inorganic, accumulative poison.'

"In deference, however, to the National Pure Water Association, which has so often accused the advocates of fluoridation of making unwarranted claims, we emphasize the limitations of this experiment would justify only the following conclusions:

Réunion du Conseil des Gouverneurs — 1964

L'assemblée du Conseil des Gouverneurs de l'Association dentaire canadienne peut se comparer à une réunion des Etats généraux de la profession dentaire canadienne. Avec cette différence que les Etats généraux, à leur origine, étaient constitués par le clergé, la noblesse et le tiers état (le peuple), tandis que le Conseil des Gouverneurs se constitue des représentants de tous les dentistes du Canada, soient-ils spécialistes, professeurs, omnipraticiens ou secrétaires administratifs. Les dentistes du Canada sont représentés par leurs délégués des organismes provinciaux (1 par 500 dentistes ou fraction d'icelle), par les présidents de sections spécialisées et par les présidents de comités ou de conseils chargés d'étudier un aspect des activités de la profession.

On dit 'assemblée,' mais il faudrait plutôt employer les termes 'les assemblées,' puisque cette réunion dure près de quatre jours.

Des rapports sont soumis; ceux-ci sont étudiés, paragraphe par paragraphe, par des comités d'étude; enfin les rapports originaux et les commentaires du comité

qui les a étudiés sont présentés à l'assemblée générale qui peut les accepter, les amender ou les rejeter. La procédure qu'on utilise s'inspire des principes démocratiques les plus purs.

Les assemblées de 1964, à Edmonton, se sont déroulées dans une atmosphère pleine de prudence à cause de l'influence inavouée qu'exerçait sur les délibérations le rapport de la Commission royale d'enquête sur les services de santé, qui avait paru à peine quelques jours avant le début des assemblées.

Néanmoins, certaines sphères de la vie professionnelle ont accusé des progrès notables.

Services auxiliaires.—Des tentatives sont faites à divers endroits du pays pour former des assistantes dentaires à des écoles secondaires ou des écoles d'arts et métiers. Ces initiatives, entreprises sous l'égide de la profession, donnent d'excellents résultats.

L'entraînement des techniciens par la profession est au point mort. Par ailleurs, les techniciens marquent des points contre les dentistes dans les provinces de l'ouest.

Les hygiénistes augmentent légèrement en nombre et les curriculums des diverses écoles s'apparentent de plus en plus.

Services dentaires.—On groupe sous ce vocable toutes les activités qui ont trait à l'aspect administratif de l'exercice de la profession, telles détermination des honoraires, assurance-santé, corporations dentaires, etc. La politique de l'Association au sujet des corporations de services dentaires demeure inchangée: elle invite les provinces à créer chez elles des corporations pour répondre à un besoin que ressent de plus en plus la population pour des traitements qui feraient l'objet d'assurance de groupe.

Spécialistes et spécialisation.—Les spécialités reconnues par l'Association souhaitent toutes la création du Collège royal des chirurgiens dentistes. Des tendances se font sentir chez d'autres groupes de spécialistes pour obtenir une reconnaissance officielle.

Enseignement dentaire.—Le nombre des étudiants en chirurgie dentaire va en augmentant, mais pas au même rythme que la population. Une campagne de recrutement est en cours. Le choix d'étudiants réellement doués pour entreprendre des études dentaires s'établit d'une façon plus certaine grâce à certains tests spécifiques. L'enseignement prodigué dans les facultés s'améliore graduellement par des contacts plus fréquents entre les éducateurs des diverses institutions et par des méthodes plus avancées de pédagogie.

Services dentaires hospitaliers.—Les services dentaires gagnent de plus en plus de place et d'importance dans les hôpitaux. Les administrateurs de ces institutions réalisent que l'appareil buccal joue un rôle dans la santé de la population et que la chirurgie dentaire mérite une reconnaissance dans les hôpitaux.

Journal.—Le Conseil des Gouverneurs a décidé d'augmenter l'octroi qu'il verse au Journal pour que celui-ci soit plus volumineux et pour qu'il devienne une manifestation majeure de la vie de l'Association. On a de plus consenti à fondre les deux sections en supprimant la division qui existait entre le français et l'anglais.

Secrétaire.—L'assemblée était la dernière à laquelle participait le docteur Don W. Gullett, après avoir occupé le poste de secrétaire durant de nombreuses années. Le rapport qu'il présentait aux Gouverneurs, pour la dernière fois, était en quelque sorte son "chant du cygne" et l'esprit qui l'animait en était un de gratitude pour tout l'appui qu'il a reçu au cours de sa carrière.

L'assemblée de 1964 des Gouverneurs de l'A.D.C., sans apporter de changement drastique dans la vie de l'Association, a montré, encore une fois, que notre organisme national jouit d'une autorité et d'une force considérables, appuyées sur une structure financière solide.

G.deM.

L'Association

LA REUNION ANNUELLE A EU LIEU LE 24 JUIN

La première séance du Conseil des Gouverneurs de l'Association dentaire canadienne a eu lieu le 24 juin dernier, à 9.30 hres, dans la suite Rupert's Land de l'Hôtel Macdonald, à Edmonton. Ces séances se sont poursuivies jusqu'à samedi, le 27 juin. Le congrès national a commencé dimanche, le 28 juin. Le docteur James Zimmerman, président de l'Association, a présidé les séances du Conseil des Gouverneurs et le dîner annuel de l'Association, lundi, le 29 juin.

Les représentants officiels de l'Association dentaire britannique et de l'Association dentaire américaine étaient respectivement Mm. Terrence Ward et Harold Hillenbrand, secrétaire de l'Association américaine. Ces deux invités ont aussi pris part au programme scientifique. Le docteur Ross Stuart, d'Edmonton, était le président du comité d'organisation du congrès. Huit cent dentistes ont pris part à ce congrès.

REPONSES AU QUESTIONNAIRE EN NOMBRE RECORD

Les dentistes canadiens, dans une proportion de 43 pour cent, ont répondu au relevé qu'entreprend tous les cinq ans l'Association sur "L'économie de l'exercice dentaire." C'est la proportion la plus considérable jamais atteinte. L'enquête portait sur l'exercice de 1963. Les réponses sont à être compilées et un rapport paraîtra plus tard.

Voici le pourcentage des dentistes, par provinces, qui ont répondu au questionnaire, comparé avec celui d'il y a cinq ans:

	1963	1958
Terre-Neuve	46—pour cent—	58
Ile-du-Prince-Edouard	44	33
Nouvelle-Ecosse ..	38	28
Nouveau-Brunswick	35	25
Québec	34	26
Ontario	46	36
Manitoba	38	30
Saskatchewan	51	45
Alberta	48	42
Colombie britannique	46	36
Canada entier	43	39

PRIX DE L'A.D.C. DECERNES AUX GAGNANTS DE L'EXPO-SCIENCES

L'Association dentaire canadienne a présenté ses prix à deux étudiants qui avaient préparé des étalages pour la troisième Expo-Sciences nationale qui avait lieu récemment à Montréal. Les certificats et les chèques de $100. ont été mérités par Maryl Shaw Weatherburn, élève de 12e année au Rideau High School d'Ottawa et par André Bélanger, élève de 12e année du Collège de Rigaud, Rigaud, Québec.

Cette exposition groupait 62 étudiants venant de 22 localités différentes. Elle est organisée par le Conseil canadien d'Expo-Sciences, dont l'Association dentaire canadienne est un des patrons. La jeune fille qui a présenté le meilleur étalage à l'exposition fut Mary Allison, de Morris-

Le docteur Marcel Bourgon, de Montréal, présente les prix de l'A.D.C. aux deux gagnants de la troisième Expo-Sciences, soit André Bélanger de Rigaud, P. Qué. (en haut), et Maryl Shaw Weatherburn d'Ottawa (en bas).

burg, Ontario, qui avait gagné, l'an dernier, un prix de l'Association. Le docteur Roger Charette, de Montréal, agissait comme un des juges, tout en représentant l'Association.

PUBLICATION D'UN FASCICULE SUR LA CYTOLOGIE BUCCALE

Tous les membres de l'Association dentaire canadienne ont reçu un fascicule décrivant la technique des frottis pour le dépistage des cancers de la cavité buccale. C'est l'Association qui, conjointement avec l'Institut national canadien du cancer, l'a publié. Cette publication constitue la seconde phase d'une campagne de renseignements sur le sujet qui a débuté, en décembre dernier, par une conférence spéciale qui a eu lieu à Montréal, à l'intention des délégués des facultés dentaires et des secrétaires des organismes provinciaux.

Le Canada

UN GROUPE S'OPPOSE A L'ETABLISSEMENT DE CORPORATIONS DE SERVICES DENTAIRES

Le Conseil canadien d'information dentaire a récemment distribué de la littérature dans laquelle on peut lire: "L'établissement de corporations de services dentaires constitue une menace à l'existence de tout dentiste et un défi à son droit de traiter ses patients au meilleur de ses connaissances et de son habileté professionnelles." Le Conseil "ne se propose pas de s'aligner avec ou de se superposer aux autres organismes dentaires existant actuellement." Les docteurs Elliot Siegel et Ray Shunock, de Toronto, apparaissent respectivement comme président et secrétaire de ce Conseil.

LE TROPHEE DES DEBATS REVIENT A McGILL

Le débat annuel entre les étudiants des Universités McGill et de Montréal se fait toujours sur des sujets brûlant d'actualité. Cette année, le thème était le suivant: "L'assurance-santé dentaire peut définitivement et complètement améliorer l'état de la santé dentaire dans la province de Québec." L'équipe de McGill, soutenant l'affirmative, a remporté la palme de justesse et repris possession du trophée offert par le Collège des chirurgiens dentistes de la province de Québec.

Hygiène publique

NOMINATION FEDERALE POUR LE DOCTEUR McCABE

Le Ministère de la santé nationale et du bien-être social annonce que le docteur C. Aberdeen E. McCabe vient d'être nommé officier d'hygiène dentaire publique à sa division d'hygiène dentaire.

Né à Valleyfield, Québec, le docteur McCabe a terminé, en 1928, ses études dentaires à l'Université McGill. Il s'est plus tard qualifié en hygiène dentaire publique à l'Université de Montréal. Il a travaillé, ces dernières années, pour la Ligue d'hygiène dentaire, à Montréal, et il fut chargé des cours en hygiène dentaire publique à l'Université de Montréal. Le docteur McCabe fait partie du conseil d'hygiène publique de l'Association dentaire canadienne.

ON NE RECONNAIT PLUS LA SPECIALITE D'HYGIENE DENTAIRE PUBLIQUE

Le Collège des chirurgiens dentistes de la province de Québec a décidé de ne plus reconnaître la spécialité d'hygiène dentaire publique. Neuf détenteurs de certificats de spécialistes dans ce domaine, qui leur avaient été décernés plus tôt, peuvent continuer d'utiliser ce titre. Le Collège ne reconnaît maintenant que les spécialités de chirurgie buccale, d'orthodontie, de périodontie et de prothèse.

Lors du récent congrès annuel à Edmonton on voit (de gauche à droite) le docteur Don W. Gullett, secrétaire de l'A.D.C., le docteur James Zimmerman, président sortant de charge, et le docteur Harold Hillenbrand, secrétaire de l'Association dentaire américaine • Seen at the recent national convention of the Canadian Dental Association in Edmonton are (l. to r.) Don W. Gullett, C.D.A. secretary; James Zimmerman, C.D.A., immediate past president; and visiting American Dental Association secretary Harold Hillenbrand.

Chronique internationale

ON COMBAT L'OPPOSITION AUX CORPORATIONS DE SERVICES EN AMERIQUE

Le conseil de santé dentaire de l'Association dentaire américaine a émis une déclaration après "s'être rendu à l'évidence qu'il se fait une guerre contre les corporations de services dentaires." Cette déclaration se lit en partie comme suit:

> "La politique actuelle de l'Association est de conseiller à toutes ses sociétés constituantes d'établir des corporations de services dentaires, parce que ces initiatives serviront au public si et quand des groupes formuleront des demandes pour des services de santé dentaire . . . La société dentaire et le groupe doivent comparer eux-mêmes les avantages de corporations de services dentaires sans but lucratif patronisées par la profession avec ceux offerts par des compagnies d'assurance responsables . . . Le conseil ne croit pas que des arguments invoqués pour mousser des affaires doivent s'appuyer sur des accusations non fondées et susceptibles de tromper les intéressés . . ."

Le représentant John E. Fogarty, dans un discours qu'il prononçait récemment devant la Société dentaire du Massachusetts, déplorait la formation de "groupes réactionnaires au sein de la profession dentaire" qui s'opposent non seulement "aux initiatives prises par le gouvernement dans le domaine de la santé, mais qui tentent même de discréditer les efforts de votre profession pour disséminer les soins dentaires par le truchement des corporations de services dentaires."

Le corps dentaire royal canadien

VISITES ET VOYAGES OFFICIELS

En tant que membre du Conseil, le brig. K.M. Baird, directeur général des Services dentaires pour les forces armées du Canada, s'est rendu à Edmonton en vue d'assister à la réunion annuelle du Conseil des Gouverneurs de l'Association dentaire canadienne, du 24 au 30 juin dernier. Il a profité de son séjour à Edmonton pour assister également au Congrès conjoint de l'Association dentaire canadienne et de l'Association dentaire de l'Alberta. Plus tôt dans la même semaine, le brig. Baird, en compagnie du col. B.P. Kearney, officier dentiste de la Région militaire de l'Ouest, avait visité la base aérienne de l'A.R.C. à Cold Lake (Alb.) pour procéder à l'inspection de la nouvelle clinique dentaire.

Le maj. A.W. Brusso, officier principal du ravitaillement, a visité la Direction médicale du War Office, à Londres, du 3 au 12 juillet et il a assisté à la réunion annuelle du Standing Working Group for the A.B.C. (American, British, Canadian) Table of Medical Equivalents.

Le maj. W.H. Harrington, qui fait partie du personnel de la Direction, a pris part au colloque sur l'instruction en vue de l'entretien au Collège d'état-major de l'Armée canadienne à Kingston (Ont.) du 17 au 19 juin.

HONNEUR CONFERE A DES OFFICIERS SUPERIEURS

Le 27 juin dernier, le col. I.A.L. Millar, sous-directeur général des Services dentaires, et le col. B.P. Kearney, officier dentiste de la Région militaire de l'Ouest, ont été faits membres (Fellows) du Collège international des dentistes en reconnaissance de la précieuse contribution qu'ils ont apportée au bien-être général de la profession dentaire.

BIENVENUE AUX NOUVEAUX DIPLOMES

Seize nouveaux officiers dentistes diplômés de quatre universités canadiennes ont reçu leur première affectation aux endroits indiqués ci-après: le cap. C.J.M. Boston, Université McGill, à la 12e Com-

pagnie dentaire, Halifax (N.-E.); le cap. R.W. Chernesky, Université d'Alberta, à la base aérienne de l'A.R.C. à Cold Lake (Alb.); le cap. G.D.V. Dippel, Université McGill, à la base aérienne de l'A.R.C. à Goose Bay (T.-N.); le cap. W.H. Dunningan, Université d'Alberta, à la 11e Compagnie dentaire, Edmonton; le cap. M.H. Harach, Université d'Alberta, à la 14e Compagnie dentaire, Winnipeg; le cap. J.P.J. Laporte, Université de Montréal, au Camp de Valcartier (Québec); le cap. M.G. McRae, Université d'Alberta, à la base aérienne de l'A.R.C. à Comox (C.-B.); le cap. R.F.C. Oswin, Université d'Alberta, à la 11e Compagnie dentaire, Edmonton; le cap. D. Pigeon, Université de Montréal, à la base aérienne de l'A.R.C. à Saint-Jean (Québec); le cap. G.E. Purcell, Université d'Alberta, à la 11e Compagnie dentaire, Edmonton; le cap. J.R. Robertson, Université Dalhousie, à la 12e Compagnie dentaire, Halifax; le cap. G.R. Rowe, Université Dalhousie, à la 12e Compagnie dentaire, Halifax; le cap. J.O. Strom, Université d'Alberta, à la 12e Compagnie dentaire, Halifax; le cap. J.W.C. Walls, Université d'Alberta, à la base aérienne de l'A.R.C. à Cold Lake (Alb.); le cap. R.E. Warren, Université d'Alberta, à la base aérienne de l'A.R.C. à Clinton (Ont.); le cap. B.H. Weeks, Université Dalhousie, au 1er Détachement dentaire, Quartier général de la Défense nationale à Ottawa.

CHANGEMENTS DE COMMANDANT

Au cours des derniers mois, certaines unités dentaires ont changé de commandant: le col. R.B. Jackson de Winnipeg, commandant de la 14e Compagnie dentaire de Winnipeg, a été nommé officier dentiste de la Région militaire et commandant de la 15e Compagnie dentaire de Montréal: le lt-col. W.W. Anglin de Sackville (N.-B.), clinicien principal de la 15e Compagnie dentaire, a été nommé commandant de la 14e Compagnie dentaire; le lt-col. L. G. Craigie de Kamsack (Sask.), commandant de la 35e Unité dentaire de campagne, 1re Division aérienne de l'A.R.C. à Metz (France), a été affecté à la Direction des services dentaires à Ottawa; le lt-col. J.C. Brick de Windsor (Ont.), commandant du 1er Détachement dentaire, Quartier général de la Défense nationale, a été nommé commandant de la 35e Unité dentaire de campagne; le lt-col. C.M. Cornish d'Ingersoll (Ont.), clinicien principal de la 13e Compagnie dentaire de Trenton (Ont.), a été nommé commandant du 1er Détachement dentaire; le lt-col. J.G. Butler de Princeton (C.-B.), officier dentiste de Région militaire et commandant de la 15e Compagnie dentaire, a été affecté au poste de clinicien principal au Cornwallis, en Nouvelle-Ecosse.

INSPECTION DES UNITES EN EUROPE

Le 5 mai 1964, le col. A. T. Roger, directeur du service dentaire à la Région militaire du Centre, arrivait par avion militaire à Marville, en France, pour procéder à l'inspection annuelle des unités du Corps dentaire royal canadien qui ont leur base en Europe. Au cours de sa tournée de visite à la 35e Unité dentaire de campagne, dont le quartier général se trouve à Metz, le col. Roger était accompagné du Commandant de l'unité, le lt-col. L. G. Graigie.

S'étant rendu à Soest, en Allemagne, le 11 mai, le col. Roger a fait l'inspection des installations de la 4e Compagnie dentaire de campagne, qui est sous le commandement du lt-col. G. McDougall.

Après avoir passé quelques jours de congé à Rome et à Paris, le col. Roger a terminé sa mission officielle par une visite à l'Etat-major interarmes à Londres; il est revenu à la base aérienne de l'A.R.C., à Trenton, le 12 juin.

GROUPE D'ELEVES-OFFICIERS EN VOYAGE EN FRANCE ET EN ALLEMAGNE

Pour la deuxième année consécutive, un groupe de 15 étudiants-officiers du Corps dentaire royal canadien, représentant cinq écoles dentaires du Canada, a pu se familiariser avec les activités et les usages

de l'A.R.C. en visitant les diverses escadres de la 1re Division aérienne en Europe. Leur voyage de 16 jours, organisé grâce aux bons offices du lt-col. L. G. Craigie, commandant de la 35e Unité dentaire de campagne, était dirigé par le lt-col. S. G. Bagnall, de la Direction des services dentaires.

Ces étudiants-officiers, qui bénéficient tous du Programme d'aide financière pour la formation d'officiers dentistes, sont revenus au Canada le 26 juin, afin de poursuivre la seconde phase de leur formation à l'Ecole du Corps dentaire royal canadien au Camp Borden (Ontario), ainsi qu'au Cornwallis et au Stadacona en Nouvelle-Ecosse.

LE MAJ. HARRINGTON TERMINE SES ETUDES POST-UNIVERSITAIRES

Le maj. W. H. Harrington, de Dawdney (C.-B.), qui a obtenu son diplôme en hygiène dentaire publique de l'Université de Toronto en mai dernier, vient d'être affecté à la Direction des services dentaires à Ottawa.

PREMIERES AFFECTATIONS DES OFFICIERS BENEFICIANT DU PROGRAMME D'AIDE FINANCIERE

Sept des étudiants qui terminent leur cours cette année à la Faculté de chirurgie dentaire de l'Université de Toronto sont entrés en fonction, au sein du Corps dentaire, aux endroits indiqués ci-après: le cap. R. W. C. Adams, Base aérienne de l'A.R.C., Uplands (Ont.); le cap. R. H. Crowson, Ecole du Corps dentaire royal canadien, Camp Borden (Ont.); le cap. N. Goldberg, 12e Compagnie dentaire, Halifax, (N.-E.); le cap. H. Griesbach, Camp Petawawa (Ont.); le cap. J. A. Nattress, Caserne Fort Osborne, Winnipeg (Man.); le cap. V. Rausch, Ecole du Corps dentaire royal canadien, Camp Borden (Ont.); le cap. T. C. Tervit, Base aérienne de l'A.R.C., Trenton (Ont.).

Nous saisissons cette occasion pour souhaiter la bienvenue à ces jeunes officiers, ainsi qu'une longue et brillante carrière dans la profession qu'ils ont choisie.

DES OFFICIERS REVIENNENT DU MOYEN-ORIENT

Deux des trois officiers dentistes du détachement dentaire des Unités de la base canadienne (Force d'urgence des Nations-Unies) au Moyen-Orient, ont reçu dernièrement de nouvelles affectations au terme de leur année de service. Le premier est le maj. R. J. K. Pyne, de Coaticook, qui vient d'assumer ses nouvelles fonctions à la base aérienne de l'A.R.C. à Comox. Il a été remplacé, au poste d'officier dentiste en chef du détachement, par le maj. T. C. Gaudet, de Little Brook (N.E.), auparavant à la base aérienne de l'A.R.C. à Chatham (N.B.). Le second est le R. J. Paturel, originaire de Halifax, qui a été affecté à la 12e Compagnie dentaire, dans sa ville natale. Il a été remplacé au Moyen-Orient par le cap. P. A. A. Dailyde, né en Lithuanie, qui faisait partie jusque-là du personnel du H.M.C. Dockyard, à Esquimalt (C.-B).

DES OFFICIERS QUITTENT LE CORPS DENTAIRE

Après avoir terminé leur période de service règlementaire, les officiers dentistes suivants ont quitté le Corps dentaire royal canadien, (forces régulières): le cap. J. S. E. Doiron, Moncton (N.-B.); le cap. A. G. Garden, Medicine Hat (Alb.); le cap. R. J. Gillis, Campbellton (N.-B.); le cap. K. S. M. Mathers, Ottawa; le cap. J. J. Mitchinson, Niagara Falls (Ont.); le cap. M. Petryk, Calgary (Alb.); le cap. P. P. Prud'homme, Lorette-ville; le cap. J. R. Sénéchal, Chicoutimi; le cap. C. G. Travis, Ottawa; le cap. D. A. Warrick, London (Ont.); le cap. J. B. Wilcock, Richmond (C.-B.).

dentistry in the news

The Association

STEERING COMMITTEE STUDIES ROYAL COMMISSION REPORT

The special Steering Committee, which acted in the preparation of the Association's brief to the Royal Commission on Health Services, has been re-activated by the Executive Council. The Steering Committee will study the Report in co-operation with other councils, committees and sections of the Association. Through the C.D.A. Steering Committee information can be transferred to and received from comparable groups to be established by the corporate members. R. A. Clappison, chairman of the Dental Services Committee, is chairman of the Steering Committee. Other members are P. G. Anderson and W. J. Dunn.

'ROYAL' GRANTED APPROVAL

Permission from Buckingham Palace to use the term 'Royal' for the proposed Royal College of Dentists was received just prior to the Board of Governors meeting at Edmonton. It is expected that draft legislation for establishment of the college will soon be submitted to the Senate of Canada.

The Board approved plans for the college a year ago. The Canadian Dental Association has agreed to finance incorporation of the college and the first meeting of its provisional council. The college will deal with standards of specialization in dentistry. It is expected to issue certificates and fellowships in dental specialties.

DIGEST OF HEALTH COMMISSION REPORT AVAILABLE

The secretariat of the Canadian Dental Association has prepared a digest of information concerning dental services contained in Volume I of the Report of the Royal Commission on Health Services.

Included are the Commission's stated objective and Health Charter for Canadians; a comparison of recommendations submitted to the Commission by the Canadian Dental Association and recommendations made by the Commission itself; additional recommendations made by the Commission but not covered in the Association's brief; and a list of statements on dental services which appear throughout the Report of the Royal Commission.

Copies of the digest have been distributed to members of the Board of Governors, to secretaries of corporate bodies and to certain other persons.

Copies of the digest may be secured on individual application, pending availability of supply, by writing to the secretary, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

Canada and the Provinces

HOSPITAL DENTAL DEPARTMENTS GAIN WELFARE COUNCIL SUPPORT

The Ontario Welfare Council, on June 25, unanimously adopted a resolution calling

Lors du congrès annuel à Edmonton le docteur W. Scott Hamilton (à gauche), ancien doyen de la Faculté de chirurgie dentaire de l'Université d'Alberta, reçoit un certificat de membre honoraire de l'A.D.C. de la part du docteur R. H. MacLean (à droite), doyen actuel de cette faculté • Recipient of an honorary membership in the Canadian Dental Association at the recent national convention in Edmonton was W. Scott Hamilton (l.) former dean of the Faculty of Dentistry, University of Alberta. Dean H. R. MacLean (r.) of the Manitoba faculty is shown making the presentation.

for the creation of more dental departments in Canadian hospitals. The resolution expresses support for the brief of the Canadian Dental Association to the Royal Commission on Health Services. It requests the Canadian Council on Hospital Accreditation to stipulate, as a requirement for accreditation of a hospital, the establishment of adequate dental departments in any hospital of 200 beds or more. The resolution also requests the Ontario Hospital Services Commission to encourage and support establishment of dental departments in hospitals of 200 beds or more.

International Items

EUROPEAN DENTAL GROUPS MOVE TOWARD CLOSER UNION

The European Economic Community, closely linking the Netherlands, France, West Germany, Belgium, Luxembourg and Italy, has necessitated a closer union of the dental organizations of these countries. The Treaty of Rome, signed in 1957, which established the European Economic Community, better known as

the Common Market, calls for the progressive abolition of restrictions on the free practice of professions and the harmonization of the educational systems and diplomas of the member states. This is reflected in the intensive work of the Dental Liaison Committee of E.E.C. which is composed of two representatives of the dental organizations from each member country except Italy.

The committee has now prepared a document, "Study of the equivalence of the diplomas and professional qualifications of the dental practitioners of the six countries of the E.E.C.," which has been submitted to E.E.C. authorities in Brussels. This document deals with the following problems: on January 1, 1968 all restrictions discriminating against foreigners are to be abolished in the E.E.C. countries, that is, dentists shall have the right to practise anywhere under the same conditions as the nationals of the country concerned. Because there is considerable variation in the different national patterns of dental education, the Liaison Committee has suggested that the E.E.C. authorities consider instituting an examination for all E.E.C. dentists wishing to practise in another E.E.C. country.

The Liaison Committee is also preparing a second document, "Study of the harmonization of dental curricula in the E.E.C. countries." This will contain proposals for required standards for dental curricula needed to grant the right of free establishment in the six E.E.C. countries without additional examination for those who take their examination after the harmonized course.

Observers from dental associations in Britain, Norway and Denmark attended the meetings of the Dental Liaison Committee.

ISRAEL DENTAL SCHOOL IS DEDICATED

Dental education in Israel marked a turning point with the formal dedication of the new dental school building of the Hebrew University—Hadassah School of Dentistry in Jerusalem, August 11-13. The ceremony was highlighted by speeches from the president of Israel, Mr. Salman Shazar, from President Eliahu Elath of the Hebrew University, and from Dean Ino Sciaky of the dental school. Other visiting dignitaries from the Hadassah women's organization and Alpha Omega Fraternity participated in the dedication program. Leading dental scientists were featured in a special commemorative scientific session. Canadian dentists who witnessed the dedication ceremonies included J. A. Sherman and Mark Zimmerman of Toronto.

The school was founded by the Alpha Omega Fraternity which raised one and a half million dollars for the building of the dental school and the establishment of the Alpha Omega Research and Postgraduate Centre.

In recent years immigrants streaming into Israel in great numbers have required far more dental service than the country is able to provide. Established dentists are 60 years old on the average, and the need for additional dentists has become increasingly urgent.

The top floor of the school has been allocated to the Alpha Omega Research and Postgraduate Centre. Alpha Omega Fraternity will send dental scientists from throughout the world to give refresher courses for Israel's dentists. A considerable amount of research has also been planned. An extensive program of preventive dentistry is contemplated with benefits extending far beyond the boundaries of Israel.

ISAAC SCHOUR MEMORIAL FUND STARTED

R. G. Kesel of Chicago has announced the establishment of a memorial fund to commemorate the late Isaac Schour, former dean of the College of Dentistry, University of Illinois. The fund will be used to support the education of teachers and students. Contributions may be sent

to the University of Illinois Isaac Schour Memorial Fund, University of Illinois College of Dentistry, Office of the Dean, 808 South Wood Street, Chicago, Illinois 60612, U.S.A.

ORAL BIOLOGY CONFERENCE IN LONDON, ENGLAND

The Third International Conference on Oral Biology will be held in London, England, at the Royal College of Surgeons of England, June 14-16, 1965. Presentations will be given by speakers who are working in oral biology in many countries. Further information may be obtained from the secretary, Department of Dental Science, Royal College of Surgeons of England, Lincoln's Inn Fields, London W.C.2, England.

AMERICAN ACADEMY OF PERIODONTOLOGY TO CELEBRATE GOLDEN ANNIVERSARY

San Francisco, California, will be the venue of the golden anniversary meeting of the American Academy of Periodontology, November 4-7, 1964. This meeting will be held in the Sheraton-Palace Hotel. The program will feature contributions from around the world. Further information may be obtained from H. A. Hartman, chairman of publicity, American Academy of Periodontology, 4187 Pearl Road, Cleveland, Ohio, U.S.A.

SAN FRANCISCO MEETING FOR HOSPITAL DENTAL CHIEFS

San Francisco will be the site of the fourth annual meeting of the American Association of Hospital Dental Chiefs, November 7, 1964, at the Mt. Zion Hospital and Medical Center. D. F. Tobin, dean of Seton Hall College of Dentistry, announced that the conference will deal with material of interest not only to hospital dental directors but to dental educators and dental hospital staff members.

'The role of the hospital in undergraduate training' will be the topic of an address by D. A. Collins. J. J. Obst will discuss a complete oral health service as an integral part of total health care in the hospital with emphasis on dental treatment, education and research. The meeting will also be addressed by G. J. Casey, secretary of the Council on Hospital Dental Service of the American Dental Association.

Further information concerning this meeting may be obtained from I. E. Gruber, secretary, The American Association of Hospital Dental Chiefs, 100 South Grand Avenue, Baldwin, New York 11510, U.S.A.

TUFTS OFFERS DENTAL COURSES

A variety of graduate courses is being offered at the Tufts University School of Dental Medicine, Boston. Periodontology I is a two-year specialist training program for dentists interested in qualifying for certification in periodontics. Periodontics II, a one-year specialist training program, is for persons with a year's previous graduate or postgraduate training in periodontics. Periodontology III is designed for those interested in the academic and research aspects of periodontics, as well as preparation for specialty board certification.

Three graduate programs in oral pathology are offered: a one-year course oriented toward clinicians, teachers, and research workers; a two-year program leading to qualifications for certification by the American Board of Oral Pathology, which may also lead to a master of science degree; and a three-year course for persons interested in a research career.

For those wishing to prepare for specialization and certification by the American Board of Oral Surgery, a three-year program has been arranged. One year of this program will be spent at Tufts University School of Dental Medicine and

the remaining two years at the Boston City Hospital as intern and resident.

There is also a one-year basic science course in oral surgery for persons desiring to fulfil the requirements for certification by the American Board of Oral Surgery.

For further information and application forms, enquiries should be addressed to the Tufts University School of Dental Medicine, Graduate Division, 136 Harrison Avenue, Boston, Massachusetts.

POSTGRADUATE COURSES OFFERED IN NEW YORK

The First District Dental Society will offer a variety of short postgraduate refresher courses during the fall months. Further information concerning these courses may be obtained from J. J. Adelson, First District Dental Society, Statler Hilton Hotel, 7th Avenue and West 33rd Street, New York 1, New York, U.S.A.

Dental Organizations

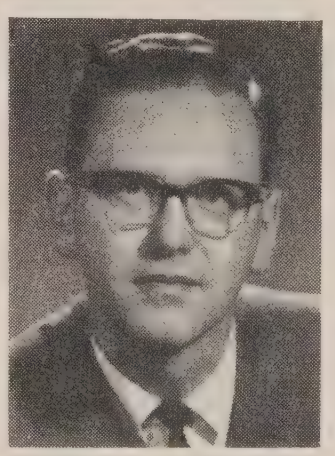
McLUHAN HEADS VICTORIA SOCIETY

W. W. McLuhan was recently named president of the Victoria and District Dental Society. He succeeds E. N. Screech. Also elected were the following officers: M. J. T. Dohan, vice president; G. A. Stocker, treasurer; and F. G. Baker, secretary. S. J. Fisher, K. L. Moysey and J. M. Plecash were named directors.

PLUMB HEADS VANCOUVER SOCIETY

The final meeting of the 1963-64 season of the Vancouver and District Dental Society was devoted to a non-dental subject, a departure from the succession of technical themes featured at preceding society meetings. The lecturer was Father David Bauer, coach of the Canadian Olympic hockey team that competed at Innsbruck, Austria.

Named as incoming president for 1964-65 was B. M. Plumb. He succeeds R. K. Lindsay. Other officers elected were J.A. Folkins, president-elect; C. R. Braaten, secretary; and D. A. Sinclair, treasurer. T. A. Cacchioni, E. I. Slakov, J. I. Johnston and T. E. Ramage were named directors.



H. G. Pettapiece of Parksville, president of the British Columbia Dental Association.

ILLEGAL PRACTICE SPREADS IN SASKATCHEWAN

Illegal dental practice is now being carried on in Yorkton, Swift Current, Moose Jaw, Saskatoon and Regina, according to the June 23 *News Letter* of the College of Dental Surgeons of Saskatchewan. Two years ago illegal practice occurred only in Saskatoon and Regina. More charges of illegal practice have been laid this year than ever before.

Council held a special meeting in Regina on June 19 to plan strategy in combatting attempts by untrained persons to gain legal sanction for the direct provision of dentures to the public.

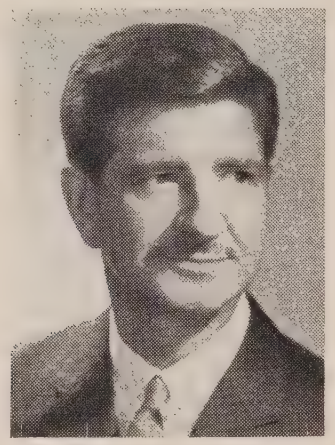
NEW DENTISTS REGISTERED IN MANITOBA

Seventeen new dentists and one orthodontist were recently registered by the Manitoba Dental Association and granted

licences to practise in Manitoba. Fifteen of the registrants are from Winnipeg, one comes from Brandon, one from Deloraine, and one from Ontario.

GRENON IS PRESIDENT OF QUEBEC ASSOCIATION

J. G. A. Grenon of Quebec City is the new president of L'Association Dentaire de la Province de Québec. Dr. Grenon was elected at the provincial association's recent annual convention held at l'Estérel, Ste-Marguerite du Lac Masson. A native of Chicoutimi and a graduate of the Université de Montréal, Dr. Grenon served with the Canadian Army Dental Corps from 1942 until 1946 when he established a practice in Quebec City.



J. G. A. Grenon

A resolution adopted at the same meeting requests that provincial authorities determine the fluoride content of all public water supplies in the province and furnish this information to the Quebec society. One purpose of the resolution is to facilitate the prescription of fluoride supplements by individual practitioners.

NEW GRADUATES LICENSED IN QUEBEC

Forty-three new graduates—23 from the Université de Montréal and 20 from McGill University—received their licences at a special ceremony in Montreal early in June. Welcoming the new practitioners were President Henri Brouillet of the Quebec College of Dental Surgeons and R. M. Wiener of Montreal. College registrar R. M. LeBlanc administered the oath to each registrant.

Temporary licences were issued to three additional dentists pending fulfilment of Canadian citizenship requirements. Also licensed were two dental hygienists.

ATLANTIC ORTHODONTISTS MEET

The seventh annual meeting of the Atlantic Orthodontic Society was held in Charlottetown, Prince Edward Island, July 6-8, 1964, in conjunction with the Atlantic Provinces Dental Convention.

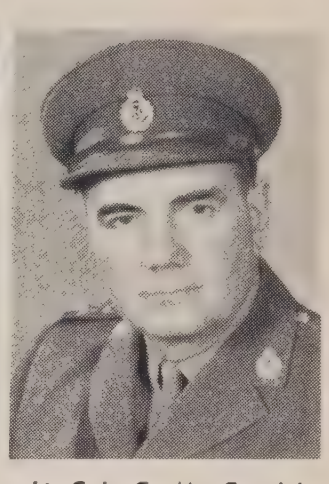
A. L. Posen of Toronto was the guest clinician. His two presentations were entitled 'The assembly of the edgewise mechanism' and 'Treatment procedures in severe Class II, Division 1 malocclusion.' There was also a lecture for general practitioners on 'Interceptive procedures useful in daily practice.' The subjects discussed at the meeting covered a wide range of the latest trends in the use of the edgewise mechanism; special emphasis was given to the trend towards the general use of headgear, and a much more conservative approach towards extractions in general was stressed.

NEWFOUNDLAND DENTISTS VISIT U.S. NAVAL STATION ARGENTIA

Dentists from St. John's, Corner Brook, Placentia, Harbour Grace, Gander and Roberts visited U. S. Naval Station Argentia on June 19 where American dental officers were hosts to the Newfoundland Dental Society. Kira Obrazcova, president of the Newfoundland Dental Society, was present along with M. J. Maguire, immediate past president, R. A. Downton, first vice-president, and R. V. Winsor, secretary.

Following a welcoming address by Capt. Oliver, an interesting and informative program was presented. A film on hospital dentistry general anaesthesia was shown; Capt. Oliver spoke on fluoridation; Dr. Hamilton presented a case history of globulo-maxillary cyst; Capt. Pierce gave examples of unusual jaw relationships; Dr. Juliene described extraction of all maxillary teeth of a three-year-old patient; and Lt.-Cmdr. Kitzmiller and Doctors Tully, Rosenbaum and Carmody displayed, by means of radiographs, root canal therapy and a case of dermoid cyst.

Col. R. B. Jackson



Lt.-Col. C. M. Cornish

Lt.-Col. J. C. Brick

Lt.-Col. J. G. Butler

Royal Canadian Dental Corps

CHANGES IN COMMAND

Changes in command of dental units were recently announced for Col. R. B. Jackson, Lt.-Col. W. W. Anglin, Lt.-Col. L. G. Craigie, Lt.-Col. J. C. Brick, Lt.-Col. C. M. Cornish, and Lt.-Col. J. G. Butler.

Col. Jackson, a native of Winnipeg, graduated from the University of Toronto in 1943. The same year he was commissioned in the Royal Canadian Dental Corps and since then has served with the Royal Canadian Navy aboard H.M.C.S. Ontario and H.M.C.S. Magnificent and with the Royal Canadian Air Force at No. 35 Field Dental Unit (Europe). From January 1956 until May 1959 he served in the Dental Directorate and was then appointed senior specialist with No. 13 Dental Company. In July 1961 he was appointed commanding officer of No. 14 Dental Company in Winnipeg and in July of this year Col. Jackson became command dental officer and commanding officer of No. 15 Dental Company at Montreal.

Lt.-Col. W. W. Anglin

Lt.-Col. L. G. Craigie

Lt.-Col. Anglin was born in Sackville, New Brunswick. Commissioned in 1944 following graduation from McGill University, he has served at various naval, army and air force establishments as well as in Korea and Europe. In August 1962 he was appointed senior clinician with No. 15 Dental Company at St-Jean, P.

Quebec. Lt.-Col. Anglin was appointed commanding officer of No. 14 Dental Company, Winnipeg, in August of this year.

Lt.-Col. Craigie is a native of Kamsack, Saskatchewan. Since graduation from the University of Toronto in 1943, Lt.-Col. Craigie has served at various army bases, with No. 27 Brigade in Europe and as an instructor at the Royal Canadian Dental Corps School. In July 1961 he was appointed commanding officer of No. 35 Field Dental Unit (Europe). On return to Canada he will be employed in the Dental Directorate.

Lt.-Col. Brick, born in Windsor, Ontario, graduated from the University of Toronto in 1949. He has served at various army and air force establishments, No. 35 Field Dental Unit (Europe), and as senior clinician with No. 13 Dental Company in the Dental Directorate. In April 1964 he was appointed commanding officer of No. 1 Dental Detachment at Ottawa. In July he became commanding officer of No. 35 Field Dental Unit (Europe).

Lt.-Col. Cornish, who was born in Ingersoll, Ontario, graduated from the University of Toronto in 1942 and received his commission at that time. Since then he has served at various naval, army and air force establishments, the Dental Directorate and the Brigade in Europe. In June 1961 he was appointed senior specialist with No. 13 Dental Company and in September senior clinician. In July 1964 Lt.-Col. Cornish was appointed commanding officer of No. 1 Dental Detachment, Ottawa.

Lt.-Col. Butler was born in Princeton, British Columbia. A 1944 graduate of the University of Toronto, he has served at various army and air force establishments, the Dental Directorate and in Korea. Since June 1961 Lt.-Col. Butler has been command dental officer and commanding officer of No. 15 Dental Company at Montreal. In July of this year his new appointment was senior clinician at H.M.C.S. Cornwallis, Nova Scotia.

COL. MILLAR AND MAJ. HARRINGTON ON DUTY TRIPS

Col. I. A. L. Millar, Deputy Director General of Dental Services, visited Camp Gagetown, New Brunswick, July 13-15, as an Army Headquarters observer during the Regular Force summer concentration. The purpose of his visit was to assess the trials of new items of field dental equipment and the organization of the Royal Canadian Dental Corps in the field.

Maj. W. H. Harrington of the Directorate Staff took part in an Applied Preventive Dentistry Symposium, July 27-30, at the Army Institute of Dental Research in Washington.

MAJ. WRIGHT TO WASHINGTON

Maj. J. J. N. Wright of Exshaw, Alberta, is attending a 44-week course in Advanced Theory and Science of Dental Research. The course, at the United States Army Institute of Dental Research in Washington, commenced September.

LT.-COL. PROTHEROE ATTENDS MANAGEMENT COURSE

Lt.-Col. D. H. Protheroe recently attended a short course on Methods and Standards Orientation at the Royal Canadian Ordnance School, Longue Pointe, P. Quebec.

Canadian Dental Schools

CANADIAN PROFESSORS ACCEPT U.S. POSTS

Two prominent dental teachers recently left Canada to take up new appointments in the United States.

Gordon Nikiforuk, professor of preventive dentistry and chairman of the Division of Dental Research, University of Toronto, left at the end of June to

accept a new appointment in the Department of Oral Biology, University of California at Los Angeles.

R. E. Jordan, associate professor of operative dentistry at Dalhousie University, has moved to Pittsburgh where he has accepted a position at the Cleft Palate Research Center of the University of Pittsburgh.

Fluoridation

FLUORIDATION APPEAL DISMISSED IN DUBLIN

Gladys Ryan, the Dublin housewife who failed last year to have Ireland's water fluoridation act declared as unconstitutional, has now lost an appeal against the 1963 High Court decision. In upholding the constitutionality of the Health (Fluoridation of Water Supplies) Act of 1960, Supreme Court Chief Justice C. O. Dalaigh concurred with High Court Justice Kenny who ruled last year that the act does not violate Mrs. Ryan's personal rights or the personal rights of her children, does not violate the authority of the family, and does not violate the family's right of physical education of children.

Dental caries is a national problem. It damages teeth, and through these teeth it may be injurious to health. That it is not infectious, contagious or communicable is immaterial, the chief justice declared.

The State, he said, was organized for the common welfare of all its citizens. The State has the duty of protecting the citizens from dangers to health in a manner compatible with the rights of those citizens as human persons.

Dental caries constitutes the type of danger from which the State has not merely the right but the duty to protect its citizens. Accordingly, parliament has chosen water fluoridation to deal with the problem. Mrs. Ryan, he added, has failed to refute the evidence that this is not only the most effective method, but indeed, the only effective method.

The court did not accept that water fluoridation was mass medication or mass administration of drugs through water. "It is a misuse of words to refer to the process in such terms," the chief justice said.

FLUORIDATION PROCEEDS IN AUSTRALIA

Australia's capital, Canberra, and biggest city, Sydney, have both given the go-ahead for fluoridation of their water supplies. Sydney's fluoridation program will affect 2.5 million persons.

The state government of New South Wales has strongly endorsed fluoridation with the further announcement that it would pay half the capital cost of installation of fluoridating equipment by municipalities.

The decision for Canberra was made by the federal cabinet of Australia. Canberra is Australian Capital Territory. The cabinet's decision was based on a study made by Canberra's local governing body and on the advice of experts.

J. D. Anthony, minister of the interior, said he and the local council were completely satisfied that fluoridation was the cheapest, safest and most effective method of combatting dental decay. A motion for referendum was turned down.

NEW YORK CITY TUSSLES WITH FLUORIDATION

New York City's drinking water will be fluoridated by the end of the year, predicts Armand D'Angelo, city water commissioner. One of the two private companies supplying water to a small part of the city's population has also agreed to fluoridate.

D'Angelo's predecessor as water commissioner, D. F. Paduano, an avowed anti-fluoridationist, has instituted court action to halt the planned fluoridation.

Paduano, joined by three members of local anti-fluoridation organizations, filed suit on a number of counts. He noted that the complaint "covered every possible angle."

Mayor R. F. Wagner said the suit "merely recites the series of claims that had been rejected by public agencies after the most thorough consideration." New York City's Board of Estimate approved fluoridation last December 12, with the mayor's personal endorsement.

At that time, Water Commissioner D'Angelo instructed the two private companies to begin fluoridation as soon as possible.

The Jamaica Water Supply Company has announced that it will fluoridate its water supply and pay for the equipment.

The other private company which supplies water to 150,000 residents of Queens is the centre of a new controversy. The New York Water Service Division of the Utilities and Industries Corporation has not yet decided to fluoridate and threatens a rate increase because of the cost of equipment.

ONTARIO'S REFERENDUMS 'UNTIDY'

Ontario's Fluoridation Act was called "untidy" by Health Minister M. B. Dymond who predicted that amendments "will come." Ontario legislation allows for fluoridation either by municipal council decision or by referendum, but a petition signed by 10 per cent of the voters can bring about a referendum and its results are binding.

Amendments proposed for this legislation would require a three-to-five year waiting period between referendums for or against fluoridation and a possible increase to 25 per cent of the electors on the requirement for a petition. The provision which permits municipal councils to introduce fluoridation by by-law will be maintained.

The health minister pointed out the problems the present legislation could cause towns adopting fluoridation by referendum.

"By permitting another vote within a year," he said, "you could have a situation where a municipality could make an investment in fluoridating equipment and just have it operating for about six months when another vote might throw it out, without the public having an opportunity to determine its value."

'FLUORIDATION AROUND THE WORLD'

The status of fluoridation in 69 countries around the world is described in the June *International Dental Journal,* published by the Fédération Dentaire Internationale. Written by G. H. Leatherman and J. Ellis, F.D.I. secretary general and assistant to the secretary general respectively, the article points out that while fluoridation of community water supplies is increasing on a world-wide basis, its progress is slow. The three reasons for this delay are: (1) lack of a piped water supply; (2) economic problems, and (3) opposition from anti-fluoridationists. Other areas discussed are fluoride tablets, use of fluoride in table salt, fluoride in milk and topical applications of fluoride.

AMERICAN DENTAL ASSOCIATION 'RECOGNIZES' ANOTHER DECAY-PREVENTIVE DENTIFRICE

The American Dental Association has given recognition to Cue toothpaste as "an effective decay-preventive agent." This is the second dentifrice given such recognition by the association.

A statement issued on August 1 by the A.D.A. Council on Dental Therapeutics reports that: "Cue has been shown to be an effective decay-preventive dentifrice that can be of significant value when used in a conscientiously applied program of oral hygiene and regular professional care."

At the same time, the council announced re-classification of Crest toothpaste into its group A. On August 1, 1960, Crest

was placed in group B, the first dentifrice to receive this recognition. Cue has now been classified in group B.

Group A consists of accepted products listed in *Accepted Dental Remedies*, published annually by the council.

Group B consists of products which, because of their relative newness, lack sufficient evidence for regular listing in *Accepted Dental Remedies*, but for which there is good evidence of usefulness and safety. According to the Council on Dental Therapeutics, the distinction between group A and group B products is related to time and available evidence and not to quality or effectiveness.

In its report on Cue, the council stated that it had "reviewed carefully the laboratory and clinical data submitted by the Colgate-Palmolive Company to support the effectiveness of its product Cue toothpaste as an agent for home use in the pressure prevention of dental caries and [had] classified the product in group B."

The report continued: "The manufacturer has supplied data from three clinical studies, each of which was of two years' duration. These studies were conducted under varying conditions; one involved the use of children ranging in age from seven to 16. In this study the brushing was supervised three times a day, and the subjects received a dental prophylaxis every six months. The data indicate a DMFS reduction in caries incidence of approximately 37 per cent."

Another study showed a decay reduction of 17 per cent under normal home use.

In reporting on Crest, the council stated that it had "considered carefully all of the additional clinical data which [had] been submitted by the Procter and Gamble Company in order to confirm the usefulness of Crest as a partial caries-preventive agent and [had] re-classified the product from group B to group A."

The council said that the manufacturer had submitted eight additional clinical studies since 1960.

Studies which involve varying degrees of supervision showed decay incidence reductions ranging from 12 to 54 per cent, the council reported.

The dentifrices were tested in communities which had fluoride in their water supplies and the results showed that these stannous fluoride dentifrices would reduce the incidence of dental decay, although the reduction was considerably less than that provided by fluoridated water.

Public Health

ONTARIO PUBLIC HEALTH DENTISTS WILL MEET IN OCTOBER

Three sessions for public health dentists are featured at this year's Ontario Public Health Association Fifteenth Annual Meeting, Toronto, October 26-28. A business session will be held on Monday, October 26 at 11.00 a.m. A 'television and public health' visit to Ryerson Institute of Technology is scheduled for Monday afternoon, 2.30 p.m. C. H. M. Williams of the Faculty of Dentistry, University of Toronto, will speak on Wednesday afternoon, 2.00 p.m., on 'Oral cytology—the public health dentist's role.'

Economics

P.E.I. DENTISTS SEEK SERVICE CORPORATION

Prince Edward Island dentists have initiated steps to set up a dental service corporation. The island province thus joins Saskatchewan in taking this action.

Other provinces that have corporations are Alberta, Quebec, Nova Scotia and British Columbia. So far Dental Services Association of British Columbia is the

only corporation with a specific prepayment plan in prospect.

SEEK IMPROVEMENTS IN ONTARIO DENTAL WELFARE PLAN

The Royal College of Dental Surgeons of Ontario, on recommendation of its Dental Services Committee, seeks improvements in Ontario's dental welfare plan. Specifically, the R.C.D.S. wants a 20 cent increase in the monthly grant for eligible beneficiaries, bringing the grant up to 90 cents per capita monthly. Also requested is a broadening of the eligible beneficiary groups. The R.C.D.S. wants to have all Mothers' Allowance Act beneficiaries covered. The college also wants to have similar benefits accorded to old age assistance and old age security beneficiaries who currently can only receive repairs to existing dentures.

Awards and Honours

Four British Columbia dentists, who are graduates of the University of Oregon, were recently presented with 'fifty-year gold certificates' for having practised 50 years or more. The recipients were A. E. Clarke and R. S. Goodwin of Vancouver, Hugh Clarke and H. C. Gill of Victoria.

DIGEST OF HEALTH COMMISSION REPORT AVAILABLE

The secretariat of the Canadian Dental Association has prepared a digest of information concerning dental services contained in Volume I of the Report of the Royal Commission on Health Services.

Included are the Commission's stated objective and Health Charter for Canadians, a comparison of recommendations submitted to the Commission by the Canadian Dental Association and recommendations made by the Commission itself, additional recommendations made by the Commission but not covered in the Association's brief, and a list of statements on dental services which appear throughout the Report of the Royal Commission.

Copies of the digest have been distributed to members of the Board of Governors, to secretaries of corporate bodies and to certain other persons.

Copies of the digest may be secured on individual application, pending availability of supply, by writing to the secretary, Canadian Dental Association, 234 St. George Street, Toronto 5, Ontario.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

■

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

■

Bone meal versus fluoride

To the Editor:

We continually read in dental journals that the level of one part fluoride to a million parts of water is unanimously considered a safe and effective method of *partially* preventing dental caries.

There are members of the general public who are not convinced of this statement and are using effective filters to remove fluorides and chlorides from communal drinking water. Because of the increasing amount of sugars and carbohydrates consumed, diabetic conditions are on the increase. The level of 1 ppm fluoride in the water supply will not protect diabetic persons against cavities.[1] What does the depositing of fluoride in the water do for these people? In my opinion *nothing.*

Hippocrates, the father of medicine, told his patients to eat one ground-up mouse a day to prevent tooth decay. This sounds like an effective preventive method, provided of course that the mouse is healthy, properly prepared and cooked.

This points to a more modern method of employing bone meal tablets for the prevention of caries. A publication of the Royal School of Dentistry at Umea, Sweden, recently contained an article which describes an experiment by Aslander of the Royal Institute of Technology at Stockholm.[2] Aslander brought up a family of four children totally free of dental cavities, using bone meal as a dietary supplement. This is an indication that bone meal should be further investigated by our research departments. It is high time something was done to benefit diabetic persons and the drinkers of non-fluoridated water. It could also be of additional benefit to those drinking fluoridated water.

I am one dentist who would like to see several control centres set up—two at least—to test the effectiveness of fluoridation versus bone meal as a dietary supplement.

There is an interesting article on dental research at the University of Toronto which was published by Grainger in the *Journal of the Ontario Dental Association* in June of this year.[3] I am in complete accord with this article and would like to see the nutrition study described by Grainger continued on into adult life, especially the use of bone meal as a diet supplement.

J. C. Stevenson, D.D.S.,
Port Carling, Ontario.

REFERENCES

1. Sweeney, E. A., Shaw, J. H. and Rubin, R. T. Effect of alloxan diabetes on fluoride rentention and caries incidence in rats. J. D. Res. 41:866, 1962.
2. Aslander, A. A. Odont. Revy 13:39, 1962.
3. Grainger, R. M. Dental research at the University of Toronto. J. Ontario D. A. 41:6:22, June 1964.

Against Dental Service Corporations

To the Editor:

An editorial in the July issue of the C.D.A. *Journal,* entitled 'Alternative mechanisms for prepaid dental care,' was critical of those

"few members of the profession [who] have recently expressed their disapproval of the dental service corporation." The relevant point is whether the statements made in support of the concept of the dental service corporation are valid; whether this proposition is opposed or supported by few or many members of the profession can be discovered only by free and open discussion.

The most concrete evidence as to the true nature of the dental service corporation can be gathered from its legal articles of incorporation many of which have been carefully studied. Because each statement in a legal document must stand by itself it is indeed valid to buttress one's views "with sundry assertions and assorted quotations plucked from the context of articles of incorporation and service agreements of several existing corporations in Canada and in the United States."

A reference has been made to "arousing latent fears of a government take-over of the profession." This fear is not latent; it is present and real because this theme has appeared with regularity in the pages of this Journal as a reason for advancing acceptance of the dental service corporation. In fact, in this very same July editorial the following statement appears: "the dental service corporation may be the only acceptable alternative to government administration of the scheme." The implication seems plain here that — according to the C.D.A. — in order to avoid government take-over of the profession, the only alternative is to accept the dental service corporation.

The editorial further states: "And perhaps the average practitioner might be pardoned if he visualizes the dental service corporation as some kind of latter-day Trojan horse, . . ." While the parallel of the Trojan horse is that of the editor, it is one which warrants considerable thought.

The editorial which continues ". . . conceived by a deluded coterie . . ." is also the expression of the editor and not all average practitioners hold this point of view. We are certain that those whose point of view differs from ours are sincere, highly motivated and well-meaning individuals. The fact that we disagree — and we have stated our reasons and given authorities — does not in any way imply that we believe that those holding a different point of view are guilty either of insincerity or impropriety.

Many dentists feel that the C.D.A. — before advocating the establishment of dental service corporations in each province — should openly and frankly discuss with the general membership of the profession such (in our view) inevitable features of the dental service corporation as fixed fee schedules, pro-ration of fees, prior authorization of treatment plans, third party rediagnosis, etc.

A careful analysis seems to show that the dental service corporation has nothing to offer the public which an insurance company with its vast resources cannot offer, except one thing — control of the clinical freedom of the dentist. Many see the dental service corporation, far from being dentistry's answer to government take-over of the profession, as a cure worse than the disease.

Dentists on the whole are both progressive and socially minded. They have in the past shown themselves willing to accept and try new ideas which seem socially desirable; witness the fact that initially the dental service corporation was supported in the states of Washington and California. It is interesting to note that the opposition to the dental service corporation developed *only after* it had been given a fair trial in both these states. The dental service corporation has become a divisive influence within the profession, not because there are dentists who are recalcitrant, and unreasonable but because there are good and cogent reasons why it is detrimental both to the profession and to the public.

We hold the view that dentists are intelligent, capable of sound and mature judgement and fully conscious of their responsibilities to the people they serve. For this reason we urge that they be given the opportunity to examine all sides of this important issue, and to consider them carefully, and to make known their concensus by the traditional method of the ballot. We are certain that, given this opportunity, they will reach a reasonable decision.

D. C. Clee, D.D.S.,
President, Canadian Council for Dental Information,
1588 Danforth Avenue,
Toronto 6, Ontario.

The C.D.A. has supported the concept of the profession-sponsored dental services plan since 1950. It does not thereby necessarily support all articles of incorporation of specific service corporations. For example, the C.D.A. policy statement on dental prepayment plans adopted at the 1964 annual meeting states: "Dentists should be free to exercise their professional judgement and perform covered services without prior authorization of the administrative arm of the plan." Nowhere in this latest policy statement does the C.D.A. advocate pro-ration of fees or third party diagnosis.

The C.D.A. has never advocated the dental service corporation as an exclusive mechanism for prepaid dental care, although in certain circumstances it may be the only accep-

table mechanism. We would certainly question whether "many" Canadian dentists would prefer government take-over to dental service corporations.

As stated in the editorial, it is desirable to have an alternative to commercial insurance plans, closed panels and government-controlled schemes. That is why non-profit profession-sponsored plans acceptable to the public and to the profession should be developed. It is not suggested that plans of this type have a monopoly of the prepaid dental services field nor even that they should control the major portion of the market. They should, however, be large enough to show that the profession is capable of administering a plan which meets the needs of the public as well as the requirements of the profession. American experience has shown that the profession is capable of doing the former. If we avoid the pitfalls of the Washington and California plans surely we can devise a plan capable of doing the latter. And furthermore, a smoothly functioning corporation would provide a yardstick that other plans must measure up to if they are to get or retain business. Surely this is an objective worthy of the support of those who now are dedicated to opposing dental service corporations.

Open and frank discussion of this subject is indeed desirable. But the C.D.A. has a right to expect that representatives of the corporate members sent to the annual meeting be well informed on this issue and on the opinions of the dentists they represent so that recourse to a special referendum will not be necessary. *(Ed.)*

conventions • congrès

Toronto Academy of Dentistry Winter Clinic
November 26, 1964

The Annual Winter Clinic of the Academy of Dentistry, Toronto, will again be held at the Royal York Hotel, Toronto, November 26, 1964.

Clinical lectures will be given by Frank Beube, head of the Department of Periodontics at Columbia University, New York City, and José Medina, professor and chief, Department of Operative Dentistry, University of Maryland, Baltimore. There will also be seminar presentations on endodontics, crown and bridge prosthodontics and pædodontics. A number of other clinical lectures, table clinics and commercial exhibits round out a diversified scientific program. Matthew B. Lawson, City of Toronto Planning Director, will be the luncheon speaker.

For further information write to Academy of Dentistry, 230 St. George Street, Toronto 5, Ontario.

announcements • avis

CANADIAN DENTAL ASSOCIATION

1964		
1965	Quebec City	May 30-June 2
1966	Halifax	June 12-15
1967	Toronto	May 14-17

FÉDÉRATION DENTAIRE INTERNATIONALE

San Francisco	November 7-14
Vienna	June 26-July 3
Israel	
Paris	July 7-13

Sept. 27-29, 1964	Eastern Ontario Dental Association	Skyline Hotel, Brockville	Dr. K. L. Hargadon	298 Elgin Street, Ottawa 4, Ont.
4 oct., 1964	Académie canadienne des Sciences dentaires	Centre Social Université de Montréal	Dr. A. J. Guay	132 rue Radisson, Trois-Rivières, P. Que.
Oct. 24-25, 1964	Montreal Dental Club Pre-Clinic Seminar	Queen Elizabeth Hotel, Montreal	Dr. George Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Oct. 26-27, 1964	Montreal Dental Club Fall Clinic	Queen Elizabeth Hotel, Montreal	Dr. George Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Nov. 9-12, 1964	American Dental Association	San Francisco, California	Dr. H. Hillenbrand	222 East Superior Street, Chicago 11, Illinois, U.S.A.
23-29 nov., 1964	38es Journées dentaires internationales de Paris	Maison de la Chimie, Paris	M. Henri Sahel	75 rue Blanche, Paris-9e, France
Nov. 26, 1964	Annual Winter Clinic, Toronto Academy of Dentistry	Royal York Hotel, Toronto	Mrs. N. H. Montgomery	230 St. George Street, Toronto 5, Ontario
Dec. 26-31, 1964	American Association for the Advancement of Science	Queen Elizabeth Hotel, Montreal	Mr. R. L. Taylor	1515 Massachusetts Avenue, N.W., Washington 5, D.C., U.S.A.

POSTGRADUATE AND REFRESHER COURSES

TORONTO • The Faculty of Dentistry, University of Toronto, offers courses to dentists leading to specialist certification in dental public health, dental oral surgery and anaesthesia, orthodontics, paedodontics, and periodontics. A separate course in anaesthesia as it applies to dentistry is also available.

The following short postgraduate courses will also be presented during the session 1964-65: PERIODONTICS, October 27, 1964; CROWN AND BRIDGE PROSTHESIS, November 2-6, 1964; PAEDODONTICS, January 4-5, 1965; OCCLUSION AND OCCLUSION CORRECTION, January 18-22, 1965; ENDODONTICS, February 17-19, 1965; ORTHODONTICS, March 22-26, 1965; PERIODONTICS, April 5-9, 1965; PRACTICE ADMINISTRATION, April 26-27, 1965; and ORAL SURGERY, May 3-7, 1965.

Enquiries and applications should be directed to the chairman, Division of Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

MANITOBA • The Faculty of Dentistry, University of Manitoba, offers a one-day postgraduate seminar on PERIODONTOLOGY FOR THE GENERAL PRACTITIONER, October 24, 1964. The subject matter, to complement the Monday program of the Winnipeg Dental Society, includes treatment of acute ulcerative gingivitis, electric powered tooth brush use, periodontal instrument design, flap operation and occlusal equilibration. The course will be directed by A. B. Wade. Tuition fee $20. Enquiries and requests for application forms should be directed to the director, Department of University Extension and Adult Education, University of Manitoba, Winnipeg 3, Manitoba.

Note • Due to lack of space the Journal cannot accommodate all announcements of foreign dental meetings and postgraduate and refresher courses. Readers are invited to write to C.D.A. headquarters for information concerning unlisted meetings and courses. Further information concerning listed meetings and courses should be sought from the sponsoring institution.

The Canadian Dental Association

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L'Association Dentaire Canadienne

DENTISTRY AND THE ROYAL COMMISSION REPORT

An initial appraisal of the major dental recommendations of the Royal Commission on Health Services reveals that many of the profession's proposals have been accepted by the Commission. There are also recommendations which the profession will have to study and upon which it has yet to express an opinion. However, in the area of dental care for children, the Commission's recommendations are at variance with Association policy.

The commissioners leave no doubt about their attitude toward health services insurance. The following quotations from the introductory portion of their report give a clear indication of their philosophy:

"We accept the statement of Sir Alec Newsholme [that]: 'Civilized communities have arrived at two conclusions, from which there will be no retreat, though their full realization in experience has nowhere been completely achieved.'

" 'In the first place, THE HEALTH OF EVERY INDIVIDUAL IS A SOCIAL CONCERN AND RESPONSIBILITY; and secondly, as following from this, MEDICAL CARE IN ITS WIDEST SENSE FOR EVERY INDIVIDUAL IS AN ESSENTIAL CONDITION OF MAXIMUM EFFICIENCY AND HAPPINESS IN A CIVILIZED COMMUNITY.'

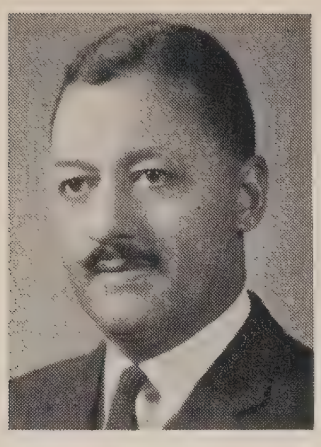
" . . . The field of health services illustrates, perhaps better than any other, the paradox of our age, which is, of course, the enormous gap between our scientific knowledge and skills on the one hand, and our organizational and financial arrangements to apply them to the needs of men, on the other.

"What the Commission recommends is that in Canada this gap be closed. That as a nation we now take the necessary legislative, organizational and financial decisions to make all the fruits of the health sciences available to all our residents without hindrance of any kind. All our recommendations are directed toward this objective. There can be no greater challenge to a free society of free men."

Accordingly, the Commission has concluded that health resources, including nearly all personal and all public health services, education of health personnel, health-related research, and all the attendant health facilities, are a social concern of the entire nation. A full range of personal medical services and personal dental services for children, expectant mothers and welfare recipients should become a social responsibility provided by the state. The Commission further recommends that public moneys be used to provide health services to all Canadians on a universal basis. Its proposals envisage ultimate replacement of the traditional individual freedom of the medical practitioner by a freedom of the corporate professions, subject to and dependent on the goodwill of the government of the day. The Commission recommends establishment of a single governmental administrative agency in each province to operate the entire health services program. The medical profession should no longer have the right to set its own fee schedule. Instead, maximum fee schedules should be negotiated between the medical profession and the governmental administrative agency. No extra billing would be permitted.

Voluntary insurance, the Commission contends, cannot achieve the goal of a comprehensive, universal health services program. "The number of individuals who would require subsidies to meet total health services' costs is so large that no government could impose the means test procedure on so many citizens or would be justified in establishing a system requiring so much unnecessary administration," the report says. Likewise, the commissioners reject reimbursement systems of paying for medical services as followed in Norway, Sweden, Switzerland, France and Australia. Most of these systems operate without benefit of a schedule of maximum fees agreed with the profession. "We do not believe that the reimbursement system could be transplanted into Canada . . .," the commissioners state.

The foregoing concepts are, of course, expressed in general terms. The following interpretations, with more specific application to the dental profession were presented at the Edmonton national convention. They help us to grasp the Commission's meaning and intent.



A sociologist's appraisal of the Report of the Royal Commission on Health Services

B. A. McFarlane, Ph. D., Ottawa, Ontario*

Information presented to the Royal Commission on Health Services revealed a grave shortage of dentists and dental schools, inadequate hospital dental facilities, and maldistribution of dentists. The cost of dental services is a deterrent to a sizable proportion of the population. The cost of dental education discourages potential students from entering the profession. The contributions of auxiliary personnel have been barely exploited. This is some of the significant information on which the Commissioners based their dental recommendations.

If the Commission's recommendations are fully implemented, independent fee-for-service solo practice will gradually be replaced by a more sophisticated interdisciplinary team practice where dentists work in closer association with hospitals and clinics and derive much of their income from salaries.

Because of social, economic, demographic, organizational and institutional changes taking place in Canadian society the style of life of dental practice will probably change in any case, regardless of the Royal Commission. The Commissioners' proposals attempt to cater to these changing conditions and social values through systematic planning. By disregarding these proposals we risk having to negotiate these changes in haphazard fashion, under an emotionally charged atmosphere, with hurried or ill-conceived measures designed to meet a particular crisis situation with little or no understanding how these measures will affect the other elements in the system.

*Assistant professor of sociology, Carleton University, Ottawa; and research associate, Royal Commission on Health Services.

I would like to say how honoured I am that I have been invited to participate in this panel discussion at your annual convention. These are important and exciting times in the health services field and the excitement has been heightened, in part, by the recent tabling in the House of Commons of Volume I of the Report of the Royal Commission on Health Services wherein are contained the Commissioners' recommendations. I might point out that this large tome of 961 pages is only the first volume of the Report. Volume II and 26 research studies have yet to be published.

Dentistry, as one of the major professions in the health services field, provided the basis for a number of research studies and three of the Commissions' studies which deal directly with dentistry and the dental profession will be published shortly. They are: (1) Dental Education in Canada, by K. J. Paynter; (2) The Utilization of Dentists in Canada, by Oswald Hall; and (3) Dental Manpower in Canada, a study which I carried out. These studies, in conjunction with other research studies carried out by the Commission and the data provided in the briefs submitted to the Commission by interested groups and individuals, provided the background against which the recommendations were made.

In large part most of the recommendations of the Royal Commission which pertain to dentistry have been brought forward because of the present inability, for whatever the reasons, of the profession to service the dental needs of the whole community.

A number of reasons have been put forward to explain this inability, some of which follow: the acute shortage of dentists; the shortage of dental schools; the shortage of able dental students; the lack of hospital dental facilities; the uneven distribution of dentists between urban and rural communities; the high cost of dental services and dental education; and the social values which inhibit certain segments of the population from making use of available services and cause certain segments of the population to reject, at the polling booth, the controlled fluoridation of public water supplies in the face of overwhelming scientific evidence as to its efficacy.

Viewed from this perspective the recommendations, I believe, may be divided into three major categories, namely, those concerned with the provision and organization of services; those concerned with 'manpower' or personnel; and those concerned with finance. It should be noted that these three areas — service, manpower and finance — are not mutually exclusive but are, in fact, so closely integrated that a change in any one of them will bring about changes in both of the others.

Before discussing the implications to the profession of the recommendations I would like to place before you a very brief résumé of some of the background data supplied to the Commission in the form of briefs and research reports which, in my view, provided to some extent the bases for some of the recommendations. Most of these are well known to you, especially to those of you who have recently read the Brief which the Canadian Dental Association submitted to the Commission, or have had the opportunity to see Volume I of the Royal Commission Report. These data are only repeated at this time to refresh your memories.

One of the truisms concerning dental services is that there is a universal need for them. "Yet," in the words of the C.D.A. Brief, "in any given year only one-third of the population visits a dentist."[1] Some of these, of course, are seeking only emergency treatment and they will probably not return until another emergency arises. While little information is available on the prevalence of dental disease among adults in Canada, the state of the children's dental health as documented in the briefs presented to the Commission is a chilling prospect. Other research findings presented to the Commissioners are equally as startling. I will now cite a few.

Shortage of Dentists.—For the country as a whole in 1962 the ratio of dentists to population was 1 dentist for every 3,108 persons. Since the Survey of Dental Practice carried out in 1958 showed that "Canadian dentists serve 1,000 patients each" the dentist-per-population ratio of 1 per 3,108 means that even if *all* Canadians over the age of 9 and under 50 demanded dental service only 1 in 3 could be served.

Shortage of Dental Schools.—During the period 1924-1957 Canada's population increased by 80 per cent, yet during this 33 year period no new dental schools were opened. Between 1924 and the setting up of the Hall Commission in 1961 only one new dental school was opened: the dental school at the University of Manitoba registered its first students in 1958.

Hospital Dental Facilities.—Of the 1,375 recognized public, federal, and private hospitals and related institutions and facilities in operation at any time in 1962 in Canada, only 14, or one per cent, possessed dental facilities approved by the C.D.A. There were 55 dentists on a full-time basis and 59 on a part-time basis in Canadian hospitals. This may be compared with the situation in the United States where in a survey of 1,004 hospitals in 1958 16 hospitals *each* reported having 50 or more dentists on staff either full or part-time.

Geographical Distribution of Dentists.—While the national dentist-per-population ratio is 1 dentist per 3,108 persons, the range in ratios across the country varies from a high of 1 per 1,675 in York County (which includes the city of Toronto) to a low of 1 per 34,711 in Dorchester County of Quebec; and, even in the same province as York, Russell County has a ratio of 1 dentist per 20,292 persons. These figures, dramatic as they are, do not take into account the fact that there are 11 counties or provincial census divisions in Canada wherein there are *no* resident dentists! Over 175,000 people live in these 11 areas. Another way of looking at the uneven distribution of dentists across the country is to point out that York County alone has two and a half times as many resident dentists as the four Atlantic provinces combined although the combined population of the Atlantic provinces is 10 per cent greater than that of York County. To some degree, of course, these vast differences represent the difference between the urban and rural distribution of dentists and hence, availability of dental services.

The Cost of Dental Services.—The cost of dental service is a deterrent to a sizable proportion of the population. While demand for dental services is directly related to a person's educational background — hence, his social values — at any single educational level the demand for dental services varies directly with income.[2] In fact, the data presented to the Commissioners suggest that the direct cost of health care *in general* under the present organization of health care services is beyond the means of a sizable number of individuals and families; and dental health care in particular appears to have a low priority when an individual assesses his discretionary income. Yet despite the known low utilization rate the estimated expenditures on dental services in 1961 ranked third after (1) the expenditure on mental diseases and personality disorders, and (2) diseases of the respiratory system, when compared with 18 other broad diagnostic groups as used in the Department of National Health and Welfare's study *Expenditures on Personal Health Care in Canada, 1953-61.*

The Cost of Dental Education.—A recent bulletin of the Dominion Bureau of Statistics indicated that it costs a student more per annum to train in dentistry than in education, engineering, law, medicine, and pharmacy. The impact on recruitment needs no emphasis.

Dental Personnel.—Other than the general shortage of dentists and their concentration in urban areas as already noted

the dental profession in Canada has two other noteworthy characteristics, namely: (1) the very small proportion of all dentists who are women—slightly less than two per cent, compared, for example, with Sweden and France where 25 per cent of all dentists are women; and (2) the small proportion of immigrant dentists in Canada whose basic qualifications were obtained from a dental school other than one in Canada or the United States. There were 44 named in the 1963 Directory of the C.D.A.—that is, less than one per cent of all dentists in Canada. In the medical profession of the almost 15,000 physicians registered in Canada between 1950 and 1960, more than a quarter were foreign medical graduates. This does not include the immigrant physicians from the United States.

Paradental Personnel.—Despite the evidence gathered over the years in the United States, Great Britain, Canada, and elsewhere, that the use of auxiliary personnel reaps marked benefits in both production and net income in the dental office, one in eight of Canada's dentists works without their assistance. At the higher level of assistance this is not surprising because there is a severe shortage of the most highly trained of these auxiliary personnel, the dental hygienists; and exclusive of this spring's graduates only 150 have been trained in Canada. Also at the time when the Report was being written, there were in Canada, with the exception of those in the armed forces, no facilities for the training of the other types of dental assistants on a full-time basis and the same holds true for the dental technicians. This sorry state exists in spite of the fact that the federal government alone has contributed over $400,000,000 to the technical and vocational educational system in the last three years.

Fluoridation.—In Canada in 1963 only 20 per cent of the population were living in municipalities with controlled fluoridation, plus an additional 0.6 per cent who were living in areas where the drinking water contained natural fluorides. That is, four out of every five Canadians were denied this scientifically proven dental health aid.

These, then, were some of the data placed before the Commissioners. Now let me return to the main job at hand, that is, to discuss some of the sociological implications of the recommendations for the profession.

Let me say at this point that I foresee some profound changes in the general nature of the organization of dental practice when and if all of the recommendations are accepted and implemented.

Increasing scientific knowledge and technological and social changes lead to changes in the skills and organization of most occupations and professions. Indeed, some occupations are made obsolete by these changes and, in others, traditional skills are no longer deemed important. As knowledge increases new specialties and institutions arise to utilize the new knowledge and the ability of the general practitioner to treat all of his patients declines. Hence, specialization as such in all professions leads to greater interdependence and the introduction of new services links the general practitioners, the specialists and the members of other occupations and professions in new ways.

Dentistry, unlike most of the other health professions, is principally an independent fee-for-service type of practice. In 1961 only about four per cent of all dentists in Canada were salaried personnel and an additional 2.5 per cent worked half-time in salaried posts. At the same time dentistry as presently organized is characterized by individuals in solo practice. (Only 30 per cent of 216 dentists in a recent sample survey of Canadian dentists were engaged in other than solo practice, and of these in some type of combined practice only 18 per cent shared "space, facilities and patients with colleagues.")[3] I see the relatively rapid decline in the proportion of dentists whose whole time is spent in this fee-for-service solo independent type of dental

practice as one of the most significant changes which will be taking place in the dental profession in the not-too-distant future. The impact upon the older members of the profession — essentially those accustomed to the present arrangements — during the transitional stages will, of course, be great. But a new generation of dental graduates a few years hence, whose whole dental training and education will have taken place during a period when the *newer* concept of dental practice was evolving, will probably find it difficult to imagine, with equanimity, any other system for the provision of dental services.

The introduction of a Childrens Dental Health Program and the development of all the dental clinic facilities necessary to cope with the program, the development of departments of dentistry in all general hospitals, and the education, training, and creation of a new paradental sub-profession will all have a remarkable effect upon the internal and external relationships of the profession.

The concept of the dental team has had little currency to date except perhaps in the Royal Canadian Dental Corps; yet it is implicit in all three of the recommendations mentioned above. If and when dentistry takes its rightful place alongside of the medical departments in the hospital a greater degree of interdependence between the dental specialists, the general practitioners and the paradental occupations will arise. In the hospital milieu the dental profession will be brought into closer contact with, have to co-operate with, and be under the scrutiny of, the members of an ever-increasing number of other professions and occupations: the physicians, the registered nurses, and the whole range of paramedical occupations and technical services personnel. And lastly, but certainly not least, they will be in close contact with and under the scrutiny of the hospital administrators. The hospital administrator, a member of a rapidly growing would-be profession, as organizer and co-ordinator of the complex hospital system is, to an increasing degree, controlling the activities of all the professions and occupations associated within the hospital. Hence, work will take place in what one Toronto hospital physician has called "the goldfish bowl atmosphere." This type of work environment, however, acts as an effective agent for the 'quality control' of the various services provided.

The development of the dental clinic facilities for the proposed Childrens Dental Program and the staffing of these clinics with dentists and the proposed dental auxiliaries will place a different emphasis on the skills of the dentist which are deemed to be of paramount importance.

In both of these settings, the hospital and the clinic, the situation will call for a re-definition of the professional role of the dentist both by the dentists and by others. In both situations much of the dentist's income will probably be in the form of salary and much of his time spent in the supervision and direction of a dental health team. In the children's dental clinic, as envisioned in the Report the skills which will predominate will be those of the diagnostician, the clinical supervisor, the educator, and the dental administrator, and the dentist's traditional mechanical and manual skills will be minimized. In effect, a new specialty or quasi-specialty with all the attendant rights, duties, obligations, and responsibilities of that status will have come into being. In addition, the nature of the organization of dental practice will have changed to the extent that many dentists will no longer be restricted to a practice in the semi-isolation of the office block or the shopping plaza away from their colleagues in the other health professions. Rather, they will, if they so desire, have the opportunity to become active partners in a broader hospital- and clinic-based health services team.

The passing on and the delegation of standardized duties to auxiliaries is a common phenomenon in the evolution of all professions. Indeed, in many instances because of the increasing complexity of

knowledge and the greater demands for their more intellectual professional services some professions, after some initial resistance, have seen the advantages to be gained from passing on the more mechanical, standardized, less glamourous, and more easily learned techniques and operations to other auxiliary occupations and professions. The history of medicine is replete with examples of the rise of auxiliary occupations, and the development of the nursing profession to its present form has been largely a result of the passing on of duties formerly exclusive to the physician. Interestingly enough, the nurses themselves have been busy passing on their own more routinized duties to nurses' aides and hospital maids and orderlies. Similar parallels can be drawn with the engineering profession and the rise in recent times of the engineering technologist and the design-draughtsman. The dental profession itself is not immune to this process and it has already passed on certain of its more mechanical and less intellectual tasks to the dental laboratory technicians. Any changes of this type, of course, have repercussions throughout a profession and frequently create a necessity for changes in the system of education, training, and recruitment of people to the profession and to the supporting occupations.

In the limited time at my disposal I have had to be arbitrarily selective and I chose to discuss only the implications of those recommendations which I felt would provide us with a basis for a lively discussion this afternoon. A number of the other recommendations which relate to increased financial support for research, education, new dental schools, and the financial and legal support for the immediate installation of equipment for fluoridating public water supplies, while all very important and of the utmost consequence to the profession and the dental health of the nation, are probably all so whole-heartedly supported by the profession that it would have been impertinence on my part to have discussed them with you. Instead, I have dealt with those which I believe will necessitate a re-definition of the professional role of the dentist.

In these terms what I am suggesting this afternoon is that the dental profession is at the crossroads and if the recommendations which deal directly with the profession are accepted as stated in the Report and put into force, the style of life of dental practice will be different in the future. In fact, because of the social, economic, demographic, organizational and institutional changes taking place in Canadian society the style of life of dental practice would probably be changing in the not-too-distant future in any case, whether or not there had been a royal commission. The difference between the two situations is that in the first instance planning in a systematic fashion to meet the problem of changing conditions and changing social values in society is possible. Hence, it becomes guided change. But, in the latter instance changing conditions and attitudes are met in a haphazard fashion under emotionally charged conditions, and modifications, frequently hurried and poorly or ill-conceived, are introduced to meet the demands of a particular crisis situation with little or no understanding of how they will affect the other elements in the system. Because of this I submit that many of the changes recommended which at first sight appear to be inconsistent with the traditional image and definition of the profession and the professional role, may, in fact, be a means of coping with the natural forces of change while still maintaining the major goals of the profession as well as fulfilling the natural ambitions and aspirations of individual members.

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1. Canadian Dental Association. Brief submitted to the Royal Commission on Health Services. March 1962.
2. United States Department of Health, Education and Welfare. Health Statistics, Series B, Number 14, Washington, D.C., 1960.
3. Hall, Oswald. The utilization of dentists in Canada, a study prepared for the Royal Commission on Health Services. Ottawa, The Queen's Printer, 1964.

Department of Sociology,
Carleton University

Réaction d'un sociologue au rapport de la Commission royale d'enquête sur les services de santé

par B.A. McFarlane, Ph.D., Ottawa, Ontario*

Les renseignements qui ont été présentés à la Commission royale d'enquête sur les services de santé ont démontré une pénurie de dentistes, de facultés dentaires et de services dentaires dans les hôpitaux. Le coût des services dentaires empêche un grand nombre de nos concitoyens de se les accorder. Le coût élevé des études dentaires décourage l'entrée dans la profession d'étudiants potentiels. On n'a guère exploité les contributions qu'offre l'emploi du personnel auxiliaire. Tout ceci constitue les diverses informations sur lesquelles la Commission a basé ses recommandations au sujet de la chirurgie dentaire.

Si l'on donne suite à toutes ces recommandations, la proportion des dentistes qui exercent leur profession seuls est appelée à diminuer. Elle sera remplacée par le concept d'équipe dentaire dotée d'une collaboration plus intime avec les hôpitaux et les cliniques d'enfants. Ces changements feront que le dentiste tirera la plus grande partie de ses revenus sous forme de salaire.

De toute façon, le caractère de la pratique dentaire au Canada se serait modifié dans un avenir rapproché, même sans la Commission royale, à cause des changements qui s'opèrent dans notre société au point de vue social, économique, démographique, institutionnel et gouvernemental. Dans ces conditions, on risque, en méprisant ces recommandations de la Commission royale, de répondre aux exigences d'un état de crise particulière par des décisions de fortune, improvisées, hâtives et non-mûries sans savoir comment ces décisions affecteront les autres facteurs du système.

Communication présentée au Congrès national de l'Association dentaire canadienne à Edmonton, le 29 juin 1964.

*Assistant-professeur en sociologie, Université Carleton, Ottawa; et associé en recherche de la Commission royale d'enquête sur les services de santé.

Je tiens à vous remercier pour l'honneur que vous me faites en m'invitant à participer à ce colloque au cours de votre congrès national. Nous vivons des heures palpitantes et combien significatives pour les services de santé et cet intérêt a atteint en partie son point culminant, quand la Commission royale d'enquête sur les services de santé a remis à la Chambre des Communes le premier volume de son rapport contenant ses recommandations. Permettez-moi de souligner que ce gros volume de 961 pages représente seulement la première partie du rapport. Le deuxième volume et 26 monographies ne sont pas encore publiés.

La chirurgie dentaire, une des plus importantes professions dans le domaine de la santé, a été l'objet de plusieurs sujets de recherche; les rapports de trois enquêtes spécifiques entreprises pour la Commission au sujet de la chirurgie dentaire et de la profession seront publiés bientôt: (1) L'enseignement dentaire au Canada, par K.J. Paynter; (2) L'utilisation des dentistes au Canada, par Oswald Hall; et (3) Les effectifs dentaires au Canada, que j'ai moi-même préparé. Ces études particulières et les statistiques fournies dans les mémoires soumis à la Commission par des organismes ou des individus intéressés à la question ont aidé celle-ci à faire ses recommandations.

La plupart des suggestions qui s'adressent à la chirurgie dentaire ont été faites à cause de l'impuissance de la profession — peu importe les raisons — à répondre à tous les besoins de la population.

On a mentionné plusieurs raisons pour expliquer ce phénomène: pénurie aiguë de dentistes; carence de facultés dentaires; nombre trop restreint d'excellents étudiants; absence de disponibilités pour des traitements dentaires dans les hôpitaux; répartition inégale entre les centres urbains et les centres ruraux; coût élevé des traitements et des études dentaires; et des facteurs sociaux qui empêchent certains secteurs de la population d'utiliser les services dentaires disponibles et de ne pas vouloir la fluoration de l'eau de consommation, même en face de preuves scientifiquement évidentes de sa valeur.

Les recommandations considérées dans cette optique peuvent, je crois, se grouper en trois catégories: (1) fourniture et organisation des services; (2) effectifs ou personnel; (3) finances. Il faut noter que ces trois domaines — services, effectifs et finances — ne s'excluent pas mutuellement; ils se compénètrent à un point tel qu'une modification s'opérant dans un de ces facteurs cause nécessairement des perturbations dans les deux autres.

Je voudrais, avant de parler des implications que les recommandations auront sur la profession, vous faire un résumé des renseignements qui ont été exposés à la Commission dans des mémoires ou par des recherches particulières entreprises dans l'un ou l'autre secteur: c'est en s'appuyant sur ces données que la Commission a pu formuler ses recommandations. Vous connaissez, pour la plupart, ces renseignements, car ils ont été présentés par l'Association dentaire canadienne, dans son mémoire, et on peut les consulter dans le premier volume du rapport. Je vous les cite seulement pour rafraîchir votre mémoire.

On a souvent entendu dire qu'à peu près tout le monde a besoin de traitements dentaires. Et pourtant, dans le mémoire de l'A.D.C., on peut lire: "Pourtant au cours d'une année ordinaire, à peine un tiers de la population se rend chez le dentiste."[1] Un certain nombre de ces patients n'y vont que pour des soins d'urgence et ils n'y retournent qu'à l'occasion d'une nouvelle crise. On a peu de statistiques sur l'incidence des maladies dentaires chez les adultes du Canada; chez les enfants, les chiffres soumis dans les mémoires sont effarants. Des recherches entreprises par la Commission ont aussi révélé des faits étonnants. En voici quelques-uns.

Pénurie de dentistes.—La proportion des dentistes par rapport à la population s'établissait, en 1962, à 1 pour 3,108. Le relevé sur l'économie de l'exercice dentaire de 1958 montre que les dentistes

canadiens traitent chacun environ 1,000 patients; donc, la proportion de 1 pour 3,108 veut dire que si tous les Canadiens au-dessus de neuf ans et en bas de 50 ans voulaient se faire traiter, la profession dentaire ne pourrait en recevoir qu'un sur trois.

Carence de facultés dentaires. — Entre 1924 et 1957, la population du Canada a augmenté de 80 pour cent; cependant, durant cette période de 33 ans, il n'y eut aucune nouvelle école dentaire. Entre 1924 et 1961, au moment de la création de la Commission Hall, il n'y eut qu'une nouvelle école, la faculté dentaire de l'Université de Manitoba, qui a reçu ses premiers étudiants en 1958.

Disponibilités pour des traitements dentaires à l'hôpital. — Seulement 14, ou 1 pour cent, des 1,375 hôpitaux publics reconnus, sous l'égide du gouvernement fédéral ou dirigés par des intérêts privés, ou leurs instituts affiliés avaient, en 1962, des départements dentaires approuvés par l'A.D.C. Il y avait 55 dentistes à temps complet et 57 à temps partiel. On peut comparer cette situation avec celle des Etats-Unis où sur 1,004 hôpitaux, 16 d'entre eux ont rapporté, en 1958, avoir 50 ou plus dentistes au sein de leur personnel à plein ou à temps partiel.

Répartition géographique des dentistes. —La proportion nationale des dentistes est de 1 pour 3,108 citoyens; toutefois, la gamme des proportions au travers le pays varie de la forte proportion de 1 par 1,675 dans le comté de York (où se trouve la ville de Toronto) à la proportion minime de 1 par 34,711 dans le comté de Dorchester, province de Québec; et même dans la province où se trouve le comté de York, on trouve la proportion de 1 par 20,292 dans le comté de Russell. Ces chiffres aussi éloquents soient-ils ne tiennent pas compte du fait qu'il y a 11 comtés ou divisions de recensement provincial au Canada où il n'y a pas de dentistes qui y résident: plus de 175,000 personnes vivent dans ces 'régions.' Une autre façon d'illustrer cette mauvaise répartition des dentistes au Canada est de réaliser que le comté de York seul a deux fois et demi plus de dentistes résidents que les quatre provinces de l'Atlantique prises ensemble, quoique la population de ces provinces soit 10 fois plus nombreuse que celle du comté de York. Ces différences considérables représentent évidemment l'écart qui existe dans la répartition des dentistes dans les centres urbains et ruraux et, par conséquent aussi, elles représentent la différence qui existe entre les disponibilités pour des services dentaires.

Coût des services dentaires.—Le coût des traitements empêche un grand nombre de nos concitoyens de se les accorder. La demande pour des services dentaires s'établit directement en rapport avec le degré d'éducation des personnes, donc, leur rang social; mais aussi, au même niveau d'éducation, la demande varie selon les revenus.[2] En fait, des renseignements présentés à la Commission mentionnent en général que les déboursés directement effectués pour la santé dans le contexte actuel des services de santé sont au-delà des moyens d'un grand nombre de familles et d'individus; et le soin de la santé dentaire en particulier semble être relégué au second plan, quand l'individu considère ses revenus. Cependant, malgré leur peu d'attraits, les services dentaires, en 1961, se placent au troisième rang, après les dépenses faites pour (1) les maladies mentales et les désordres psychiatriques et (2) pour les maladies du système respiratoire, si on les compare avec les 18 autres grandes classes de maladies utilisées dans l'étude *Dépenses faites en 1953-1961 pour le soin personnel de la santé au Canada*, entreprise par le Ministère de la santé nationale et du bien-être social.

Coût élevé des études dentaires. — Le Bureau national de la statistique indiquait récemment qu'il en coûte plus par année à un étudiant en chirurgie dentaire qu'à un étudiant en pédagogie, génie, droit, médecine et pharmacie. L'influence de ce facteur sur le choix d'une carrière parle d'elle-même.

Personnel dentaire.—La profession dentaire du Canada, à part ses effectifs peu nombreux et sa concentration dans les villes, a deux autres caractéristiques particulières: (1) peu de dentistes sont des femmes (moins de deux pour cent), tandis qu'en Suède et en France 25 pour cent des dentistes sont des femmes; (2) le faible pourcentage de dentistes étrangers, qui ont émigré au Canada, après avoir fait leurs études dans des écoles dentaires situées hors du Canada et des Etats-Unis. Il y en a 44 inscrits dans le bottin de 1963 de l'A.D.C., c'est-à-dire moins de un pour cent de tous les dentistes du Canada. Dans la profession médicale, au nombre des 15,000 membres enregistrés au Canada entre 1950 et 1960, plus du quart étaient des médecins diplômés de l'étranger. Ces chiffres ne comprennent pas les médecins émigrés des Etats-Unis.

Personnel paradentaire.—Un dentiste, sur huit, au Canada, travaille sans assistante, malgré des statistiques qui montrent d'une façon évidente aux Etats-Unis, en Grande-Bretagne, au Canada et ailleurs que l'emploi d'une assistante dans un cabinet dentaire augmente la production et donne des revenus nets plus considérables. On ne peut pas s'étonner de cette constatation si on regarde la question au niveau des assistantes les plus qualifiées, c'est-à-dire les hygiénistes dentaires, car il y a une pénurie grave de ces auxiliaires précieuses pour le dentiste; il y a seulement 150 hygiénistes qui ont fait leurs études au Canada, sans compter celles qui terminent leurs cours, cette année. Au moment de la rédaction du rapport, à l'exception du corps dentaire, il n'y a pas d'organisme qui forme à plein temps d'autres genres d'assistantes et la même chose se constate pour les techniciens. Il est malheureux de réaliser ces lacunes, quand on songe que le gouvernement fédéral, au cours des trois dernières années, a voté plus de $400,000,000 pour former du personnel technique dans tous les métiers.

Fluoration.—En 1963, il y avait au Canada seulement 20 pour cent de la population vivant dans des villes où la fluoration est utilisée; à ce nombre, il faut ajouter un autre 0.6 pour cent qui réside dans des endroits où l'eau est naturellement fluorée. Ce qui veut dire que quatre Canadiens sur cinq ne jouissent pas des bienfaits d'une mesure que des recherches scientifiques ont déclarée excellente. Ce sont là des constatations qui ont été exposées aux Commissaires.

Venons-en maintenant au sujet principal de cette communication, c'est-à-dire aux implications sociologiques des recommandations sur la profession dentaire.

Je prévois d'abord que des modifications profondes devront s'opérer dans le concept général de l'exercice dentaire, si toutes les recommandations de la Commission sont acceptées et mises en œuvre.

Les progrès qu'ont réalisés la science et la technique ainsi que les changements sociaux qui se produisent au sein des populations exercent une influence sur le rendement et l'organisation de toutes les situations et de toutes les professions. En plus, ces modifications sont appelées à éliminer certaines occupations et, dans d'autres, à enlever de l'importance à certaines valeurs qu'on tenait pour essentielles. De nouvelles spécialités se créent au rythme des réalisations de la science et de nouvelles insti-

tutions surgissent pour utiliser ces nouvelles connaissances: en conséquence, l'omnipraticien ne pourra bientôt plus traiter tous ses patients. C'est pourquoi, la spécialisation dans toutes les professions conduit à une plus grande interdépendance et l'éclosion de nouveaux services unit de façon inusitée le praticien général, les spécialistes et les membres d'autres activités et d'autres professions.

La chirurgie dentaire, contrairement à d'autres groupements professionnels s'occupant de santé, s'exerce en vase clos et les honoraires qu'elle perçoit sont fixés à la pièce. En 1961, seulement quatre pour cent des dentistes du Canada travaillaient à salaire et un autre 2.5 pour cent à demi-temps. La chirurgie dentaire telle que présentement organisée se compose principalement de dentistes qui exercent seuls. (Un échantillonnage prélevé récemment chez des dentistes canadiens a révélé que seulement 30 pour cent parmi 216 dentistes exerçaient d'une autre façon et que, de ce nombre qui pratiquaient avec d'autres confrères, seulement 18 pour cent partageaient en commun "l'espace, les disponibilités et les patients.")[3] J'ai l'impression que la proportion des dentistes qui consacrent tout leur temps à exercer leur profession seuls pour des honoraires à la pièce est appelée à diminuer rapidement et cette modification importante se produira dans un avenir très rapproché. La réaction que ce changement produira chez les membres plus âgés de la profession — particulièrement ceux qui sont habitués à la façon de faire actuelle — sera certes considérable. La nouvelle génération de dentistes, c'est-à-dire celle qui aura fait ses études durant cette période de transition, aura peine à s'imaginer qu'un autre système a pu être utilisé pour prodiguer des services.

La mise en œuvre d'un programme de santé dentaire pour les enfants et l'établissement des cliniques nécessaires, l'organisation de départements dentaires dans les hôpitaux et la création, la formation et l'entraînement d'un personnel auxiliaire inédit, toutes ces fonctions auront de profondes répercussions sur les relations internes et externes de la profession.

Le concept d'équipe dentaire n'est pas actuellement bien répandu, si ce n'est dans le Corps dentaire royal canadien; cependant il est impliqué dans les trois recommandations mentionnées ci-haut. Il se créera un esprit de collaboration plus intime entre les spécialistes, les omnipraticiens et le personnel paradentaire, quand les hôpitaux auront des départements dentaires bien organisés. La profession dentaire, en milieu hospitalier, viendra en contact constant avec les membres d'autres professions et d'autres occupations dont le nombre grossit constamment: médecins, infirmières et tous les autres qui occupent des situations paramédicales en technique ou au laboratoire; le dentiste sera donc appelé à coopérer avec tous ces groupes; son comportement sera observé, non seulement au niveau du personnel hospitalier, mais surtout à celui de l'administration. L'administrateur d'hôpital, qui fait partie d'une future profession qui prend de plus en plus d'ampleur, est appelé, en tant qu'organisateur et coordinateur dans l'institution complexe qu'est devenu l'hôpital, à exercer une influence considérable sur les agissements de toutes les professions et de toutes les disciplines ayant pied à l'hôpital. Il s'agira d'initiatives qui se dérouleront dans ce qu'un médecin d'un hôpital de Toronto qualifiait "une atmosphère d'intérieur d'aquarium." Ce climat toutefois favorisera le contrôle de la qualité des services prodigués.

Les fonctions professionnelles du dentiste, de par l'hôpital et de par ces cliniques d'enfants, prendront un sens nouveau à ses yeux et à ceux des autres. Ces deux responsabilités feront que le dentiste tirera ses revenus surtout sous forme de salaire et selon le temps qu'il consacrera à la direction et à la surveillance de ces équipes de santé dentaire. Tout particulièrement dans ces cliniques d'enfants, comme le veut le rapport, le dentiste devra surtout exercer ses talents de diagnosticien, de surveillant de cli-

nique, d'éducateur et d'administrateur. Sa dextérité et son habileté comme opérateur seront reléguées au second plan. En effet, une nouvelle spécialité ou une quasi-spécialité se créera pour lui à cause de son nouveau statut fait d'obligations, de privilèges, de devoirs et de responsabilités de nature différente. De plus, l'organisation de l'exercice dentaire deviendra telle qu'un grand nombre de dentistes ne pratiqueront plus seuls dans un édifice à bureaux ou dans un quartier domiciliaire, loin de ses collègues d'autres professions de santé. Tous ces professionnels auront l'occasion, s'ils le désirent, de faire partie d'une équipe dans une clinique ou dans un hôpital — d'une équipe des services de santé.

La remise ou la délégation de pouvoirs à des corps auxiliaires est un phénomène normal dans l'évolution de toutes les professions. En effet, quelques-unes d'entre elles, à cause des progrès de la science, deviennent de plus en plus compliquées et ceux qui les exercent doivent de plus en plus se réserver des tâches qui accaparent leurs facultés intellectuelles; ils doivent laisser, avec une certaine réticence au début, à des subalternes, l'exécution de certaines techniques standardisées, moins spectaculaires et facilement apprises. L'histoire de la médecine est remplie d'exemples d'éclosion de professions auxiliaires et l'organisation de la profession d'infirmière dans sa forme actuelle est le résultat de la remise par les médecins de fonctions qu'ils remplissaient autrefois eux-mêmes. Et il est intéressant aussi de noter que les garde-malades elles-mêmes ont confié à des aide-malades, à des servantes d'hôpital et à des infirmiers des travaux que, dans le passé, elles accomplissaient elles-mêmes. On peut aussi noter la même délégation de pouvoirs chez les ingénieurs qui ont créé, pour être soulagés de certaines tâches, les métiers de techniciens en génie ou de dessinateurs.

La profession dentaire a aussi quelque peu suivi cette tendance en confiant à des techniciens de laboratoire des travaux mécaniques qui demandent peu d'apport intellectuel. Tous ces changements évidemment ont une répercussion au sein de la profession et elles entraînent souvent l'obligation d'altérer le système d'enseignement, de formation et de recrutement des gens de la profession et des occupations auxiliaires.

J'ai dû, à cause du temps consacré à ma communication, faire un choix arbitraire et j'ai tenté de vous exposer seulement les répercussions qu'auraient certaines recommandations sur l'exercice professionnel du dentiste, de façon à jeter les bases pour une discussion intéressante. D'autres recommandations qui ont trait à l'augmentation des octrois pour la recherche, l'enseignement et de nouvelles facultés dentaires étaient déjà souhaitées par la profession; de même, les recommandations pour aider légalement et financièrement l'adoption de la fluoration dans tous les aqueducs publics, tout en étant importantes et lourdes de conséquences pour la profession et pour la santé dentaire du public, ont déjà l'appui du dentiste et j'aurais été mal inspiré de discuter ces questions avec vous. J'ai plutôt choisi les recommandations susceptibles de re-définir le rôle professionnel du dentiste.

C'est pourquoi, cet après-midi, j'ai voulu vous dire que la profession dentaire est à une croisée des chemins et que, si les recommandations qui touchent directement la profession sont acceptées et mises en œuvre, le genre d'exercice professionnel du dentiste est appelé à changer. En effet, le caractère de la pratique dentaire au Canada se serait modifié dans un avenir rapproché, même sans la Commission royale, à cause des changements qui s'opèrent dans notre société au point de vue social, économique, démographique, institutionnel et gouvernemental. Dans le premier cas, il s'agit d'une planification systématique pour accommoder l'exercice dentaire aux circonstances et aux valeurs sociales en évolution. C'est donc un virement voulu et concerté. Dans le deuxième cas, pour parer à des conditions et à des mentalités différentes, on risque, dans un climat chargé de senti-

ment, de prendre des décisions de fortune, improvisées, hâtives et non-mûries; on voudra répondre aux exigences d'un état de crise particulière par certaines mesures sans savoir comment ces décisions affecteront les autres facteurs du système. Je crois sincèrement que les idées nouvelles qui sont émises dans le rapport, tout en semblant au premier abord bouleverser le concept traditionnel et la définition consacrée de la profession et de son rôle professionnel, peut, en fait, être un moyen de s'adapter à l'évolution normale des temps modernes, tout en maintenant les principaux objectifs de la profession et en répondant normalement aux ambitions et aux aspirations individuelles de ses membres.

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Département de sociologie,
Université Carleton

L'UNICEF, le Fonds des Nations Unies pour l'Enfance, créé en 1946 par l'Assemblée Générale des Nations Unies, est l'organisme officiel des Nations Unies en charge des quelque 650 millions d'enfants malheureux de toutes races, religions et systèmes politiques, parsemés de par le monde. Ces enfants ont un besoin urgent, vital, d'assistance pour atteindre un standard de vie minimum, bénéficier d'une meilleure santé et recevoir une éducation. A ces enfants l'UNICEF offre ses mains et son cœur. En aidant les gouvernements de 116 pays, elle contribue à améliorer le sort de millions d'enfants et de jeunes adultes en les préparant à participer plus utilement à l'évolution du monde moderne.

W. G. McIntosh, D.D.S., M.Sc.D.,*

Toronto, Ontario

A dentist's appraisal of the Report of the

The Royal Commission on Health Services' recommendations on fluoridation, dental requirements of physically or mentally handicapped children, conduct of dental health surveys, maintenance of the Canadian Dental Association's dental health index, hospital dental departments, and creation of cleft palate treatment centres, are in accord with Association policy. But the Commission's recommendations for a children's dental program which envisages comprehensive treatment, the employment of New Zealand type dental auxiliaries in dental clinics under supervision of salaried dentists, and administration by provincial governmental agencies, are opposed to C.D.A. policy that treatment be provided by private practitioners on a fee-for-service basis, administered by dental service corporations, and initially limited on a priority basis rather than including all evident necessary care. The report, furthermore, makes no mention of public education as an important aspect of health improvement.

Recommendations of the Commission which require further study by the Association are those relating to dental care for expectant mothers and all welfare recipients; expan-

The assignment given me today is primarily an educational one. The first volume of the Report of the Royal Commission established to study health services in Canada has just recently been printed and was released to the public only as recently as the nineteenth of June. It contains the terms of reference set out by the federal government to circumscribe and define the areas to be studied by the Commission, a Canadian Health Charter which embodies the general philosophy of health care for Canadians as envisaged by the Commission, an analysis of the health of the Canadian people and the health services available to them, major recommendations for implementing the principles laid down in the Health Charter, and an assessment of the costs of

*Secretary-designate, Canadian Dental Association.

Royal Commission on Health Services

sion of existing dental schools; creation of four additional new dental schools; training subsidies for dental students, specialists and dental teachers; subsidies for rural practitioners; recruitment; licensure; research; and the creation of five federal grants which will have dental application.

Only those services provided by a dentist in conjunction with maxillofacial surgery are to become compensable medical benefits. The residual of oral surgical services, which may be rendered by physicians or dentists, will only be compensable if performed by physicians.

There is no mention of the inclusion of dental representatives when the Drug Advisory Committee of the Department of National Health and Welfare is to be expanded. Similarly, a proposal to issue periodic bulletins on the latest drug information and therapy to physicians, pharmacists and hospitals, overlooks dentists.

In each province a dental committee should study in detail the recommendations of the report. This dental committee should be prepared to act as a dental consultant to any advisory and planning council that the provincial governments may set up.

the recommended changes and developments, projected over the next thirty-year period. I have been asked to bring to your attention the aspects of this report that particularly relate to the dental profession and to the provision of dental services. A subsequent volume, not yet in print, will deal with other matters in the health field such as the services of paramedical personnel, chiropractors, osteopaths and naturopaths, voluntary organizations, health research and community activities in providing health services and facilities.

While I am sure everyone in this room is already familiar with the Royal Commission on Health Services and has been anxiously awaiting its report, let me in a sentence or two refresh your memories

on a few highlights. Seven commissioners were appointed by a federal Order in Council dated 20th June 1961 "to inquire into and report upon the existing facilities and the future need for health services for the people of Canada and the resources to provide such services, and to recommend such measures, consistent with the constitutional division of the legislative powers in Canada, as they believe will ensure that the best possible health care is available to all Canadians." Mr. Justice Emmett M. Hall was appointed chairman, and the other commissioners were Miss Alice Girard, R.N.; David M. Baltzan, M.D.; O. J. Firestone, professor of economics; M. Wallace McCutcheon, financier; C. L. Strachan, D.D.S.; and Arthur F. Van Wart, M.D. The Honourable Wallace McCutcheon resigned from the Commission on August 8, 1962 on being appointed to the Senate of Canada and a member of the government.

The Commission held public hearings in all provinces and the Yukon and reviewed 385 submissions from organizations and individuals, at least 17 of which came from dental organizations, including those from provincial dental associations and the Canadian Dental Association. In addition, the Commission studied at first hand the programs and practices in the United Kingdom, France, Holland, Sweden, Switzerland, Austria, Italy, United States, U.S.S.R., Australia and New Zealand. They also commissioned the preparation of 26 research studies by outstanding Canadian scholars.

The Commission is to be congratulated on the thoroughness with which this complex and difficult study has been made and the forthrightness used in the presentation of the findings, analyses and recommendations.

As a result of the extensive studies the Commission developed certain basic philosophies that it believes are fundamental to the provision of the highest standard of health services to Canadians. These philosophic principles are detailed in a "Health Charter for Canadians," and as it establishes the concept on which all the recommendations, including those applicable to dentistry, are based, an examination of this Charter seems the logical place for us to start.

An introduction to the Charter includes an analysis of today's environmental developments that the Commission points to by way of explaining that health care is no longer purely the responsibility of the individual. It is stressed that the individual certainly does have a responsibility in providing health services to himself and the members of his family, but that this responsibility should be shared by the community at large, and also that the individual must assume responsibility as a member of organized society for meeting a fair share of the costs of providing health resources for the nation.

It is pointed out that for any health service program to be successful the individual must assume responsibility for himself and his family to the *extent of his capacities.* This includes temperate living, wise and prudent use of those health services that are available to him, along with financial contributions toward his own care as well as toward the health resources of his community including environmental controls, educational institutions that produce health workers, and research institutions.

The public's interest in the health of the individual has expanded from community measures to prevent and control communicable diseases, to include a deeper humanitarian concern for our neighbours. It is an increasingly prevalent idea that the cost of risks that might happen to any of us should be shared by the resources of the whole community. It is also apparent that the community as a whole suffers from the individual's ill health through loss of productive working hours, welfare expenditures, disabilities and premature death. The health of Canadians, the Commission says, is therefore ". . . a matter of concern to us *as a nation.*"

Such is the general perspective used in the drafting of the Charter which reads as follows:

HEALTH CHARTER FOR CANADIANS

"The achievement of the highest possible health standards for all our people must become a primary objective of national policy and a cohesive factor contributing to national unity, involving individual and community responsibilities and actions. This objective can best be achieved through a comprehensive, universal Health Services Program for the Canadian people,

IMPLEMENTED in accordance with Canada's evolving constitutional arrangements;
BASED upon freedom of choice, and upon free and self-governing professions and institutions;
FINANCED through prepayment arrangements;
ACCOMPLISHED through the full co-operation of the general public, the health professions, voluntary agencies, all political parties, and governments, federal, provincial and municipal;
DIRECTED towards the most effective use of the nation's health resources to attain the highest possible levels of physical and mental well-being.

1. 'Comprehensive' includes all health services, preventive, diagnostic, curative and rehabilitative, that modern medical and other sciences can provide.
2. 'Universal' means that adequate health services shall be available to all Canadians wherever they reside and whatever their financial resources may be, within the limitations imposed by geographic factors.
3. 'A Health Services Program' consists of legislative enactments and administrative arrangements to organize comprehensive universal health care including prepayment arrangements for financing personal health services introduced in stages. Such a program will provide complete health care with due regard to human factors and the spiritual, social, economic and regional forces intrinsic in the Canadian way of life.
4. 'Canada's evolving constitutional arrangements' take into account the primary jurisdiction of provincial governments with respect to health matters including staging, scope and administration of health services, as well as the necessity for federal financial assistance to enable each of the provinces to implement a comprehensive, universal Health Services Program.
5. 'Freedom of choice' means the right of a patient to select his physician or dentist and the right of the practitioner to accept or not to accept a patient except in emergency or on humanitarian grounds.
6. 'Free and self-governing professions' means the right of members of health professions to practise within the law, to free choice of location and type of practice, and to professional self-government. With respect to 'institutions' it means academic freedom for medical, dental and other professional schools, and for hospitals, freedom from political control or domination and encouragement of administration at the local level.
7. 'Prepayment arrangements' means (a) financing within a province by means of premiums, subsidized premiums, sales or other taxes, supplements from provincial general revenues and (b) by federal grants taking into account provincial fiscal need.
8. 'Full co-operation' means
   (a) the responsibility of the individual to observe good health practices and to use available health services prudently;
   (b) the responsibility of the individual to allocate a reasonable share of his income (by way of taxes or premiums or both) for health purposes;
   (c) the methods of remuneration of health personnel — fee-for-service,

salary or other arrangements — and the rates thereof should be as agreed upon by the professional associations and the administrative agencies and not by arbitrary decision; with an appeal procedure in the event of inability to agree;

(d) the maintenance of the close relationship between those who provide and those who receive health services, safeguarding the confidential nature of that relationship;

(e) the provision of educational facilities of the highest standards and the removal of financial barriers to education and training to enable all those capable and desirous of so doing to pursue health service careers;

(f) the adequate support of health research and its application;

(g) the necessity of retaining and developing further the indispensable work of voluntary agencies in the health care field;

(h) the efforts to improve the quality and availability of health services must be supplemented by a wide range of other measures concerned with such matters as housing, nutrition, cigarette smoking, water and air pollution, motor vehicle and other accidents, alcoholism and drug addiction;

(i) the development of representative health planning agencies at all levels of government, federal, provincial, regional and municipal, and integration of health planning."

This Charter leaves no doubt as to the broad, inclusive nature of health services for Canadians envisaged by the Commission. In a moment we will look at the specific recommendations concerning dental services but first I wish to point out two basic principles on which the view of the Canadian Dental Association, as stated in the C.D.A. Brief to the Royal Commission, seems to be at variance with the philosophy contained in the Charter.

As you have just heard, according to the Charter, the highest possible health standards for all Canadians can best be achieved through a *comprehensive,* universal Health Services Program. The C.D.A. Brief on the other hand includes the following statements: "In Canada, with the low dentist to population ratio, and the high percentage of people suffering from dental disease, it is impossible at present to offer *comprehensive* dental care to all segments of the population" and again "The Canadian Dental Association stands resolutely opposed to the introduction of a *comprehensive* treatment program for people of all ages." The apparent difference in the two views will be discussed later when dealing with the recommendations but it can be pointed out here that the Charter is dealing with the overall principle of comprehensive health services to the extent that modern sciences can provide them, whereas the dental statements refer to the specific provision of dental services under existing and foreseeable circumstances.

The second principle has to do with the education of the public. The dental view is that the objective of good dental health for all Canadians can not be obtained regardless of the type of treatment program, without a concurrent active educational program explaining the advantages and value of good dental health over and above freedom from dental pain. The Charter, on the other hand, makes no specific mention of education of the public as an important aspect of improving the health of our people. Perhaps it was intended that the educational phase be inferred when they say that 'other measures' should supplement efforts to improve the quality and availability of health services. However, in an area where prevention plays such a vital role in the attainment of the main objective,

it seems to the writer that the educational part of the program can not be overstressed.

The personal health services listed in the report of the Commission to be included in a comprehensive, universal provincial program are Medical Services, Dental Services, Prescription Drug Services, Optical Services, Prosthetic Services, Home Care Services, Mental Health Services, and, although not separately dealt with, Nursing Services. One can not help but be interested in the recommendations for all types of service, but for obvious reasons an attempt will be made from here on to confine further comments to dental services.

The recommendations regarding dental services are prefaced in the Report by the statement ". . . the shortage of dentists in Canada is so acute that however desirable and necessary it may be, it is impossible to think in terms of a program of dental services for the entire population." It is recommended therefore that the dental health program provide services for children, expectant mothers and public assistance recipients. Except for comment expressing the desirability of eventually (in the 1980's) having the dental program cover all Canadians as is planned for medical services, there are no specific recommendations in the Report concerning the provision of dental services to other than the three groups mentioned above. It does, however, give one of the highest priorities among all its proposals to the dental program for children and suggests that it begin in 1968.

In this regard the Report recommends "that the National Health Grants Program be expanded to include a Children's Dental Health Grant to provinces to provide for dental services for children aged five and six years in the first year, children aged four to seven in the second year, children aged three to eight in the third year, with the succeeding one-year age group to be added each subsequent year; the grant to be large enough to make provision each year for at least two examinations and the evident necessary care for each child." It is suggested that eventually the program cover all children up to 18 years of age. As part of this program it is further recommended that dental clinic facilities be established in hospitals, public health centres, schools, other health facilities and in travelling clinics. The dentists working within the program are to be paid on either a full-time or sessional salary basis. Their remuneration is to be competitive with incomes in private practice and they are to direct the work of the clinics. In areas where no clinical facilities are available special arrangements are to be made with dentists in private practice. No details of this latter arrangement are given in the Report, but for medical services a fee-for-service scheme based on a maximum fee schedule without extra billing privileges is proposed. The dental program for children is to be financed solely from federal and provincial general funds with no specific premiums.

To assist the dentists in providing the services under this children's program the Commission recommends the employment of 'dental auxiliaries.' The Commission's stand in this regard is definite and certain to be controversial. This is what the report says:

> "We recognize that there may be some temporary opposition, both inside and outside the profession, to our proposal, but the recognized deplorable state of dental health in this country, combined with the scarcity of dentists, the scarcity of qualified professors of dentistry, and the time required to develop new dental schools, make emergency action imperative. Furthermore the measures we propose have been successful in New Zealand, and are being experimented with and studied in Great Britain. We are confident that we can develop a successful program in Canada and that all those who are concerned with the dental health of our children will support the proposal to the full.
>
> "The proposal is to train, as in New Zealand and now in Great Britain, dental auxiliaries who are qualified to prepare cavities and place fillings in the teeth of children, under strict preclinical and clinical supervision. They would also be qualified in dental health education and able to give instruction to patients in self-care.

"It is essential that they be licensed to practise only under the supervision of a licensed dentist and be limited to practise only in the Children's Dental Health Program."

The Report goes on to say that these auxiliaries can be trained in two years at a dental school or institute of technology in which there is dental school faculty supervision. It is stated that we will need 1,000 such auxiliaries by 1968 (which means the program would start in 1966) and that by 1971, 1,500 should be graduated each year. To develop the two-year curriculum the Commission recommends that the deans of the dental schools work with a Dental Auxiliary Advisory Training Committee comprised of representatives from the C.D.A., the provincial licensing boards, the National Dental Examining Board, the dental schools, the director of dental health of the Department of National Health and Welfare, plus non-dental representatives to include, among others, those from the Canadian Medical Association's Paediatric Section, the Dominion Council of Health and Canadian women.

A comparison of these proposals with those contained in the C.D.A. Brief is somewhat disconcerting. The profession indicated that it was opposed to a comprehensive treatment program for any age group, but that if the government were to introduce a national scheme, it should be limited to children and should be established on an incremental basis. The C.D.A. Brief suggested that treatment be provided by the dentists in private offices rather than in clinics established for the purpose, that payment should be on a fee-for-service basis, rather than by salary, that the program should be administered by provincial non-profit profession-sponsored dental service corporations rather than by governments, that the services in the first instance be limited on a priority basis rather than including all "evident necessary care," and that dental auxiliaries be trained in dental schools and not in technological institutes.

The profession's brief also encouraged the use of dental auxiliaries but did so on the principle that procedures requiring the professional training and skill of a dentist, such as making a diagnosis, planning treatment, cutting tissues, and so forth, should not be delegated. It suggested that experimental projects be set up in our dental schools to study the practicability of extending the services of recognized auxiliaries, particularly in the preventive, educational and purely technical areas of dental practice. The new type of auxiliary recommended in the Report would apparently be permitted to do those things for which the profession believes two years of training is not adequate. They would, moreover, be doing them for a group of children and young adults for whom it is most important that the highest possible quality of preventive and treatment services be rendered, if good dental health is to be maintained throughout the adult years.

The New Zealand dental nurse plan is not without its merits. However, it is the considered opinion of the C.D.A. that the two-year training program does not provide adequate basic scientific knowledge in subjects like growth and development of the jaws and face, nascent dental problems, the relationship of early necrotic and inflammatory processes to subsequent advanced pathosis of the periodontal tissues, and so forth for the dental nurse to assume the assigned responsibility for diagnosis and treatment planning. Furthermore, a reparative treatment program for recurring dental disease will only perpetuate the disease. The reduction in the incidence of dental caries that is now possible with fluoridation of water supplies, supplemented with proven preventive procedures in the dental office and at home, suggests that a much more valuable service could be provided to the under 18 age group by having the dental auxiliaries concentrate on preventive procedures and leave the responsibility for diagnosis, treatment planning, cutting of tissues — that is, those services requiring the scientific knowledge of the fully qualified dentist — to the dentist. This is

not to say that the duties of the present auxiliary, the dental hygienist, should not or could not be expanded to provide a broader service than is currently permitted, but the expansion should be in the educational, preventive and technical procedures. The educational and preventive phase of the children's program should take precedence over the treatment phase.

Further recommendations in the Report include the promotion of dental public health educational programs in all health regions or units, the establishment of a dental health survey including the maintenance of the dental health index established by the C.D.A., special consideration to the dental requirements of physically or mentally handicapped children including the frequent need to admit them to hospital in order to provide essential dental treatment, the fluoridation of every community water system in Canada, and the adoption of other means of meeting fluoride needs when no community water system exists. It is difficult to find fault with any of these suggestions. They agree with approved C.D.A. policy.

Dental services for expectant mothers and for all recipients of public assistance and their dependants are to be provided according to the Report. In the case of expectant mothers the services are to be provided by dentists in private practice; and for the welfare recipients, either in private offices, hospital out-patient departments or public health dental clinics, depending upon the welfare programs in the individual provinces.

In connection with dental services in hospitals the Report recommends that all major general hospitals establish a department of dentistry, providing both in-patient and out-patient services, that there be a chief of dental service appointed in each such hospital, that qualified dentists be appointed to the hospital staff and that centres for treatment of cleft palate cases be established in children's hospitals and in general hospitals where adequate paediatric and associated services are available.

Except for the fact that *all* welfare recipients and their dependants are covered by the proposal, and expectant mothers are also eligible, the latter recommendations for the provision of dental services are in accord with what has already been suggested by most dental organizations in Canada.

The Report notes that the dentist to population ratio is inadequate and will continue to be inadequate for some years in spite of the improved dental health that should result from the proposed fluoridation and children's programs. To offset this shortage as soon as possible it is recommended that expansion and renovation of the dental schools at Dalhousie, Manitoba, McGill, Université de Montréal, and Alberta be instituted immediately. In addition, creation of five new dental schools is advised within the next 10 years, at the University of Ottawa, University of Western Ontario, Université Laval, University of Saskatchewan and at the University of British Columbia where a school is already under development.

Certain financial incentives are also suggested in order to encourage students to enter dental schools and to facilitate continuing education and specialization among dental graduates. For example, there should be annual grants of $2,000 a year for each Canadian dental student with satisfactory performance in his final two years at a Canadian dental school. Fees, travel and living expenses for attendance at graduate programs of continuing education at dental schools should be regarded as deductible expenses for income tax purposes. As part of a seven-year crash program, grants of $5,000 should be allocated to dentists undertaking graduate courses in dental public health, in preparation for university teaching, or in training for specialty certification. In addition, special consideration in the form of subsidies is suggested to attract dentists to rural areas, and dental specialists to medium-sized centres.

Ways and means of increasing the amount of dental research, of increasing

the ratio of full-time to part-time staff at universities, and of increasing the length of the academic year in order to reduce the total length of time required to qualify for graduation are mentioned. The need to increase recruiting campaigns to attract men and women students in small towns and rural areas into the dental profession is stressed, as is the desirability of having the dental licensing authorities in the provinces reassess the restrictions placed on immigrant dentists with a view to increasing the inflow of qualified dentists.

The Report indicates that financial assistance can be provided to facilitate the implementation of all the recommendations requiring it, including aid to technical schools providing courses for the preparation of dental technicians and dental assistants. This does not seem the time or place to discuss the details of the financial aspect of providing health services to Canadians. Suffice it to say that the Report recommends that the federal government establish a Professional Training Grant, a Technical and Vocational Training Grant, a Health Professions University Grant, a Health Facilities Development Fund, and a Children's Dental Health Grant and others, which will be offered on an assortment of cost-sharing bases to the provinces, depending on the specific project to be financed. There is no doubt that if the overall plan for health care is instituted it will cost the taxpayers, in one way or another, a great deal of money. The Commission estimates that if its 'Health Services Program' is implemented, the proportion of health care expenditures to Gross National Expenditure would be of the order of 6.4 per cent in 1971, which is about one-half a percentage point more than it would be if our present pattern of health expenditures is projected to that date.

The Commission notes in its Report that medical research is no longer the one and only field of health research. Increasing amounts of research are being undertaken in all the allied fields and much more is indicated. Social and economic problems related to the provision of health services require detailed and prolonged investigation. Base-lines on which comparisons can be made in the future need to be established. These and many other illustrations are given to show the complexity of the total aspect of health services and the increasing interdependence of the various research programs.

In an attempt to co-ordinate all these programs efficiently and effectively the Report recommends that the present Medical Research Council be broadened to include all health research, with the necessary expansion of its terms of reference and its budget, and given a new name, the 'Health Sciences Research Council.' The proposed new Council would be made up of representatives from all fields of health research, it would have a layman for its chairman, and it would allocate all health research funds. The specific references to dentistry state that the Health Sciences Research Council should endeavour to expand in Canada the amount of research on dental disease and prevention, both by conducting intra-mural research and by increasing its grants to universities. It should also increase the number of research associates at dental schools and make provision for scholarships to recent dental graduates not yet qualified as research associates. It should assist in developing and maintaining a continuing system of health statistics in Canada including the maintenance of a dental health index as established by the C.D.A.

Except for possible difficulties that might be encountered when dentistry is competing with all the other health services for funds from the Health Sciences Research Council, the recommendations concerning the co-ordination of health research appear commendable. Dentistry's safeguard would seem to be fair representation on the Council.

There are two further points not included in specific dental recommendations that are of particular interest to the dental profession. The first of these has to do with entitlement for services, included

under medical service benefits, when the services are rendered by dentists rather than by physicians. There has of late been considerable discussion, mainly initiated by oral surgeons, about the discriminatory nature of certain medical service programs that do not include as benefits of the scheme many services, residing within the legal and academic competence of dentists, when they are rendered by dentists, but do include them when they are rendered by physicians. Recent proposed legislation in Ontario under Bill 163, an Act Respecting Medical Services Insurance, is a case in point. Under its terms a patient is refused reimbursement for services that are generally and legally performed by dentists, unless these same services are rendered by physicians. Keeping in mind that the Royal Commission's Report recommends that comprehensive medical services be available to everyone on a fee-for-service basis and that, at least for the present, dental service programs be provided only for children up to 18 years, expectant mothers and welfare recipients, the Report nevertheless says that the medical services benefit should incorporate as insured services only those dental services that are provided by a dentist in conjunction with maxillo-facial surgery. In other words the Commission is recommending that services in connection with maxillo-facial surgery be covered as insured services whether they are performed by physicians or dentists. In further explanation of this action the Report gives two reasons for only including services in connection with maxillo-facial surgery when rendered by dentists: one is the very short supply of oral surgeons and the heavy demand on them, envisaged as a result of the children's dental program, and the other is the difficulty in knowing just which dental services should be included and which should not be included, in what is primarily intended to be a medical services program. While it is easy to sympathize with the difficulties in limiting the services to be included, the fact remains that there are still many services commonly performed by both professions, and not included in the insured list for dentists. Therefore the plan in this respect can only be considered 'unjust and discriminatory.'

The second point to which I think reference should be made has to do with certain omissions. Under the Health Services Program, prescription drugs are to be included among the benefits. To assist in planning for this aspect of the service the Report recommends "that the functions of the Drug Advisory Committee which is responsible for advising the Department of National Health and Welfare be expanded, and its membership enlarged to include representatives of the Canadian Medical Association, L'Association des medicins de langue française du Canada, the Canadian Pharmaceutical Association, the Canadian Hospital Association, the provincial schools of pharmacy, the provincial colleges of pharmacists, and the provincial departments of health." No mention is made of dental representation on this committee. In view of the increasing use of drugs in dental offices, this omission does not seem justifiable.

Similarly, as part of another recommendation, the Report suggests that an Information Service should issue periodic bulletins providing the latest information on drugs and drug therapy to physicians, pharmacists and h o s p i t a l s. Dentists should, I believe, be added to this list.

Finally, it is interesting to note that the Report states that the leadership in establishing the full personal Health Services Program should be assumed by the Federal Government. It indicates the necessity for the fullest co-operation between all levels of government and the health professions, and it suggests that provincial advisory and planning councils be set up following a federal-provincial health conference that should be held within the next six months. It further suggests that the provinces maintain a fair degree of autonomy in setting up their health services programs. For example, they should maintain the right to

determine the order of priority of each service and the time of its introduction, but in order to qualify for federal fiscal support they must adhere to the general philosophies laid down in the Health Charter.

From the standpoint of dental services, the proposed children's program is most strongly emphasized. Comments regarding the various dental recommendations have been made throughout this paper and to repeat them here would be unnecessarily repetitious. However, it does seem pertinent to suggest, since the actual initiation of the health services will proceed at the provincial level and since dentistry will be directly involved in the provision of some of these services, that in each province a dental committee be assigned the task of studying in detail the recommendations of the Report and be prepared to act as dental adviser to the provincial advisory and planning councils.

The Report, I believe, should be carefully read by everyone who is interested in the provision of health services. The "best possible health care" for Canadians is its stated objective. This, the Commission hopes to accomplish by greater government participation than Canada has heretofore seen. It is a trend that is now well advanced in most other countries in the world. Whether we like such a trend or not, it is upon us. Dentistry is involved. We will require clear thinking and united action if we are to uphold the important principles to which as a profession we are devoted, and at the same time be able to adapt ourselves and our practices to the ever-changing patterns of health care. Both are necessary if the dental profession is to continue to improve its high standard of service and to make these services available to all Canadians.

234 St. George Street

UNICEF, the United Nations' Children's Fund, was created by the UN General Assembly in 1946 and is the official UN organization concerned with the more than 650 million underprivileged children of every race, religion and political belief in every area of the world, children who urgently need assistance to attain even a minimum standard of living, health and education. To these children UNICEF extends its hand and its heart. By giving valuable assistance to governments in 116 different countries and territories, it is able to contribute in a very real way to the welfare of millions of young people and prepare them for useful lives.

Réaction d'un dentiste au rapport de la Commission royale d'enquête sur les services de santé

par W.G. McIntosh, D.D.S., M.Sc.D., Toronto, Ontario*

Les recommandations de la Commission royale d'enquête sur les services de santé au sujet de la fluoration, des besoins dentaires des enfants physiquement et mentalement handicappés, du maintien de l'indice de santé dentaire établi par l'Association dentaire canadienne, et de l'établissement de centres de traitement des becs-de-lièvre concordent avec la politique de l'A.D.C. Mais les recommandations au sujet d'un système de traitements complets pour tous les enfants, de l'emploi dans les cliniques d'infirmières dentaires comme en Nouvelle-Zélande, surveillées par des dentistes appointés, et le tout administré par des commissions des gouvernements provinciaux s'oppose à la politique de l'A.D.C. Auparavant, la profession avait déclaré que les soins dentaires devraient être prodigués par les dentistes dans leur cabinet privé; que le paiement des honoraires devrait se faire selon un régime d'honoraires plutôt que sous la forme de salaires; que le régime devrait être administré par des corporations provinciales de services dentaires sans but lucratif, patronisées par la profession plutôt que par le gouvernement; et que les services devraient d'abord être limités par des priorités plutôt que des "soins évidemment nécessaires à chaque enfant." En outre, le rapport de la Commission ne mentionne guère l'importance de l'éducation du public comme facteur intégral de l'amélioration de la santé.

Les recommandations qui traitent des soins dentaires aux femmes enceintes et aux bénéficiaires de l'assistance publique; de l'agrandissement des facultés dentaires existantes; de la création de quatre nouvelles facultés; du versement

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Communication présentée au Congrès national de l'Association dentaire canadienne à Edmonton, le 29 juin 1964.

*Secrétaire désigné, Association dentaire canadienne.

d'octrois aux étudiants et aux dentistes qui entreprennent des études en vue de spécialisation ou en vue de l'enseignement; des subventions aux dentistes qui iraient exercer dans les campagnes; du recrutement; des exigences pour obtenir la licence; de la recherche; et de la création de cinq nouvelles catégories de subventions par le gouvernement fédéral — tous méritent une étude supplémentaire par l'A.D.C.

La Commission recommande que seulement les services dentaires prodigués par un dentiste, comme la chirurgie maxillo-faciale, soient compris comme services assurés. Tout autre traitement de chirurgie buccale sera reconnu comme service assuré s'il est rendu par un médecin.

On ne fait pas mention de la chirurgie dentaire lors de l'élargissement prévu du Comité consultatif des médicaments du Ministère de la santé nationale et du bien-être social. De même, la suggestion sur la publication d'un bulletin périodique donnant les plus récentes nouvelles au sujet des médicaments ne mentionne pas le même service pour les dentistes.

Il convient de suggérer que, dans chaque province, on forme un comité dentaire pour étudier chacune des recommandations du rapport, afin d'être préparé à conseiller d'une façon pertinente les conseils consultatifs et de planification qui seront établis par les gouvernements provinciaux.

La tâche qui m'est confiée aujourd'hui vise surtout à renseigner les membres de l'Association. Le premier volume du rapport de la Commission royale formée pour évaluer les services de santé du Canada vient d'être imprimé et le public peut en prendre connaissance depuis le 19 de ce mois. Il renferme les termes du mandat qu'a confié le gouvernement fédéral à la Commission pour limiter et définir les domaines qu'elle devait explorer; c'est en quelque sorte la charte canadienne de santé et il établit une philosophie générale des soins de santé pour les Canadiens, l'état présent des services de santé de la population du Canada et un inventaire des ressources sanitaires mis à sa disposition; ce rapport, en plus, contient des recommandations pour réaliser les principes énoncés dans la charte de santé et un estimé du coût, pour les prochaines trente années, des modifications qui sont suggérées et des initiatives qui sont proposées. On m'a demandé de vous commenter les parties du rapport qui regardent la profession dentaire et la dissémination des services dentaires. Un autre volume qui n'est pas encore imprimé traitera d'autres questions du domaine de la santé, telles que les services prodigués par un personnel paramédical, chiropraticiens, ostéopathes et neuropathes, organismes privés, les recherches au point de vue santé et les initiatives d'agglomérations pour leur fournir des facilités au point de vue sanitaire.

Tous ici connaissent la Commission royale d'enquête sur les services de santé et attendaient avec intérêt son rapport. Permettez-moi tout de même, en une phrase ou deux, de vous rafraîchir la mémoire au sujet de quelques points importants. Un ordre-en-conseil fédéral nommait sept commissaires, le 20 juin 1961, pour entreprendre une enquête et préparer un rapport sur les disponibilités mises à la disposition de la population canadienne dans le domaine de la santé et sur les besoins de l'avenir; et de recommander, en conformité avec le partage constitutionnel des pouvoirs législatifs de notre pays, des mesures, qui, à

leur avis, seraient de nature à assurer aux Canadiens les meilleurs soins de santé possible. Le juge Emmet M. Hall fut nommé président et les autres commissaires étaient Alice Girard, I.E.; David M. Baltzan, M.D.; O.J. Firestone, professeur d'économie; M. Wallace McCutcheon, financier; C.L. Strachan, D.D.S. et Arthur F. Van Wart, M.D. L'Hon. Wallace McCutcheon remit sa démission le 8 août 1962, quand il fut nommé au Sénat et membre du Conseil des Ministres.

La Commission tint des séances publiques dans toutes les provinces et au Yukon et elle reçut 385 mémoires lui venant d'associations et d'individus; 17 de ces mémoires furent soumis par des organismes dentaires comprenant ceux d'associations provinciales et celui de l'Association dentaire canadienne. De plus, la Commission a étudié de très près l'organisation et l'exercice des professions de santé au Royaume-Uni, France, Pays-Bas, Suède, Suisse, Autriche, Italie, Etats - Unis, U.R.S.S., Australie et Nouvelle-Zélande; elle a aussi chargé des intellectuels canadiens de marque d'entreprendre des recherches sur 26 domaines particuliers.

Il faut féliciter la Commission pour le sérieux mis à cette tâche ardue et complexe et pour la clarté de l'énoncé du résultat de ses recherches, de ses analyses et de ses recommandations.

La Commission, après des recherches extensives, a élaboré certaines philosophies de base qui, selon elle, sont essentielles pour prodiguer aux Canadiens les meilleurs soins de santé possible. Ces principes forment la "Charte de santé des Canadiens" et, comme celle-ci établit les concepts sur lesquels se basent toutes ses recommandations, y compris celles qui s'appliquent à la chirurgie dentaire, il convient, il me semble, d'étudier d'abord cette Charte: c'est le premier pas à faire.

Un préambule à la Charte comprend une analyse du climat social contemporain que la Commission fait entrevoir pour expliquer que les soins de santé n'incombent pas seulement à l'individu. Elle souligne que chacun est certes responsable de sa santé personnelle et de celle des membres de sa famille, mais que cette responsabilité retombe aussi sur la société en général. L'individu doit aussi assumer sa juste part du coût des ressources de santé, à titre de membre d'une société organisée.

Pour qu'un programme de services de santé ait un bon rendement, souligne-t-elle, il faut que le citoyen s'en rende responsable pour lui et sa famille à *l'extrême limite de ses moyens.* Cela veut dire qu'il doit vivre dans une tempérance raisonnable, qu'il doit faire usage avec prudence et économie des services de santé mis à sa disposition, en y contribuant financièrement pour lui-même et pour la collectivité dans laquelle il vit, y compris aux ressources qui lui assurent la salubrité de son milieu, les maisons d'enseignement qui forment notre personnel de travailleurs de la santé et aux recherches.

L'intérêt du public pour la santé de l'individu se limitait autrefois aux mesures prises pour prévenir et contrôler les maladies contagieuses; aujourd'hui, il a un sens plus large: il a une préoccupation humanitaire pour le prochain. L'idée, que le coût de la maladie qui peut nous frapper doit être partagé par la collectivité, prend de plus en plus d'ampleur. De plus, la collectivité toute entière souffre de la maladie d'un chacun par la perte d'heures de travail, des dépenses de bien-être, d'invalidité et de décès prématuré. "La santé des Canadiens, dit la Commission, est une question qui nous intéresse tous en *tant que nation . . .* "

La Charte a de vastes horizons quand elle s'exprime ainsi:

CHARTE DE SANTÉ DES CANADIENS

"La réalisation des normes de santé les plus élevées au bénéfice de notre population doit devenir un objectif premier de la politique nationale et un facteur de cohésion qui contribuera à cimenter l'union nationale, en faisant appel au sens des responsabilités et à l'action des particuliers et de la communauté. Le mieux à faire pour réaliser cet objectif est d'établir un Régime de services de santé complet et universel pour la population canadienne,

MIS EN OEUVRE en conformité avec l'évolution du régime constitutionnel du Canada;

FONDÉ sur le libre choix, et sur des professions et des institutions libres et autonomes;

FINANCÉ par des régimes de paiement anticipé;

RÉALISÉ avec la collaboration entière du public, des professions médicales, des organismes privés, de tous les partis politiques, et des gouvernements fédéral, provinciaux et municipaux;

ORIENTÉ vers l'utilisation la plus efficace des ressources de santé de la nation pour atteindre les plus hauts niveaux de bien-être physique et mental.

1. 'Complet' comprend tous les services de santé, de prévention, de diagnostic, de traitement et de réhabilitation que les sciences médicales et autres de notre époque peuvent fournir.
2. 'Universel' signifie que des services de santé convenables seront accessibles à tous les Canadiens, où qu'ils habitent et quelle que soit leur situation financière, dans le cadre des limites imposées par les facteurs géographiques.
3. 'Un régime de service de santé' consiste en dispositions législatives et administratives pour organiser des soins de santé complets et universels, y compris des dispositifs de paiement anticipé pour financer les services de santé personnels institués par étapes. Un tel régime fournira des soins de santé complets en tenant bien compte des facteurs humains et des forces spirituelles, sociales, économiques et régionales propres à la façon de faire des Canadiens.
4. 'L'évolution du régime constitutionnel du Canada' tient compte de la compétence première des gouvernements provinciaux en matière de santé, y compris l'échelonnement, l'étendue et l'administration des services de santé, aussi bien que la nécessité de l'assistance financière fédérale pour permettre à chaque province d'établir un Régime de services de santé complet et universel.
5. 'Le libre choix' signifie le droit du malade de choisir son médecin ou son dentiste, et le droit du praticien d'accepter ou de refuser de soigner un malade, sauf en cas d'urgence ou pour des raisons d'ordre humanitaire.
6. Par 'professions et institutions libres et autonomes,' on entend le droit pour les membres des professions de la santé d'exercer dans le cadre de la loi, de choisir librement le lieu et le mode de leur exercice, et de régir eux-mêmes leur profession. En ce qui concerne les "institutions", cela signifie la liberté académique des écoles de médecine, d'art dentaire et des autres écoles professionnelles; pour ce qui est des hôpitaux, cela signifie l'absence de contrôle ou de domination politique et l'encouragement à s'administrer sur le plan local.
7. 'Régimes de paiement anticipé' signifie (a) le financement dans les limites d'une province au moyen de primes, de primes subventionnées, de taxes de vente ou autres, d'appoints payés à même les recettes générales

de la province et (b) le financement au moyen de subventions fédérales qui tiennent compte des besoins fiscaux de la province.

8. 'Collaboration entière' signifie
(a) la responsabilité de chacun d'observer de bonnes règles d'hygiène et d'utiliser à bon escient les services de santé qui lui sont accessibles;
(b) la responsabilité de chacun d'affecter une part raisonnable de ses revenus (par le moyen d'impôts ou de primes, ou des deux) aux fins de la santé;
(c) les méthodes de rémunération du personnel de la santé — honoraires, salaire ou autres formes de rétribution — et les tarifs doivent être convenus par les associations professionnelles et les organismes administratifs, et non par décision arbitraire avec pouvoir d'en appeler en cas d'incapacité de s'entendre;
(d) le maintien de rapports étroits entre ceux qui donnent et ceux qui reçoivent les services de santé, rapports dont le caractère confidentiel est sauvegardé;
(e) la fourniture des facilités d'éducation du plus haut niveau et l'élimination des obstacles financiers à l'instruction et à la formation afin de permettre à tous ceux qui sont aptes et qui le désirent d'exercer une carrière dans les services de la santé;
(f) le soutien suffisant des recherches sur la santé et de leur application;
(g) la nécessité de maintenir et de développer davantage l'œuvre indispensable des organismes privés dans le domaine de la santé;
(h) les efforts pour améliorer la qualité et la disponibilité des services de santé doivent se compléter d'une vaste gamme d'autres mesures intéressant des domaines tels que l'habitation, l'alimentation, la cigarette, la pollution de l'eau et de l'air, les accidents d'automobile et autres accidents, l'alcoolisme et la narcomanie;
(i) la mise en œuvre d'organismes représentatifs de planification de la santé à tous les échelons de gouvernement, fédéral, provincial, régional et municipal, et l'intégration de la planification de la santé."

Cette Charte montre clairement l'ampleur et l'aspect compréhensif que la Commission entend donner aux services de santé que doivent recevoir les Canadiens. Nous verrons tout à l'heure les recommandations que la Commission a faites pour les services dentaires, mais auparavant j'aimerais souligner deux principes fondamentaux où l'Association dentaire canadienne, tel qu'indiqués dans le mémoire qu'elle soumettait à la Commission, qui semblent différer avec la philosophie qui a inspiré la Charte.

Vous avez constaté que, selon la Charte, les Canadiens ne pourront profiter des meilleurs services de santé qu'avec un système compréhensif, c'est-à-dire qu'avec un Régime de services de santé complet et universel. Or le mémoire de l'A.D.C., par ailleurs, renferme la déclaration suivante: "Au Canada, la proportion des dentistes par rapport à la population est tellement petite et le volume des gens qui souffrent de maladies dentaires est tellement grand qu'il est impossible d'offrir à tous les secteurs de la population un plan *complet* de traitements dentaires" et, plus loin, "L'Association dentaire canadienne s'oppose fermement à l'établissement d'un plan *complet* de traitements pour les personnes de tous âges." On traitera plus tard de la différence qui semble exister entre ces deux conceptions quand il s'agira des recommandations, mais on peut dire ici que la Charte traite du principe général des services de santé compréhensifs, comme peuvent les prodiguer les sciences contemporaines, tandis que les déclarations qui touchent les soins dentaires ne se réfèrent qu'aux services dentaires pro-

digués spécifiquement dans les conditions actuelles et dans celles prévues dans un avenir rapproché.

Le second principe a trait à l'éducation du public. Les dentistes croient qu'on ne pourra atteindre l'objectif de procurer à tous les Canadiens une bonne santé dentaire, peu importe le genre de système de traitements, sans un programme actif et concurrent d'éducation qui ferait comprendre qu'une bonne santé dentaire ne consiste pas seulement à ne pas souffrir, mais qu'elle a un sens beaucoup plus vaste et beaucoup plus positif. La Charte, par contre, ne mentionne pas que l'éducation populaire constitue un facteur important dans l'amélioration de la santé de la nation. L'aspect éducationnel est peut-être inclus quand elle déclare que 'd'autres mesures' devraient appuyer le travail pour améliorer la qualité et la disponibilité des services de santé. Cependant, il semble que, dans un domaine où la prévention est appelée à jouer un rôle aussi important pour atteindre l'objectif principal, on ne peut jamais trop appuyer sur l'aspect éducationnel d'un programme.

Le rapport de la Commission inclut comme services personnels qui seraient couverts dans un système provincial de santé complet et universel les services médicaux, les services dentaires, les services d'ordonnances, les services d'optique, les services de prothèse, les services de soins à domicile, les services d'hygiène mentale et les services infirmiers (quoique ceux-ci ne soient pas mentionnés comme entité distincte). On est certes intéressé par les recommandations au sujet de tous les services, mais il est évident qu'ici nous devons nous limiter à celles qui touchent aux services dentaires.

Le paragraphe suivant précède les recommandations qui sont faites au sujet des traitements dentaires: " . . . la pénurie de dentistes au Canada est si aiguë que, pour le moment, il est impossible de songer à un régime de services dentaires pour la population entière, si souhaitable et nécessaire puisse-t-il être." On recommande donc que le programme des services dentaires comprenne les enfants, les femmes enceintes et les bénéficiaires d'assistance publique. Il n'y a pas de recommandation spécifique dans le rapport au sujet des services dentaires qui seraient prodigués à des personnes autres que celles des trois groupes sus-nommés; il y a seulement une phrase exprimant le désir que le régime dentaire couvre éventuellement (en 1980) la population adulte, comme d'ailleurs on le souhaite pour la médecine. Cependant le rapport accorde une des premières priorités au traitement dentaire des enfants et il suggère que le régime fonctionne dès 1968.

A ce sujet, le rapport recommande que "le programme national de subventions à l'hygiène soit élargi pour inclure le versement aux provinces d'une subvention à l'hygiène dentaire infantile pour dispenser des soins dentaires aux enfants de cinq à six ans durant la première année, à ceux de quatre à sept ans durant la deuxième année, et à ceux de quatre à huit ans durant la troisième année, en ajoutant un an au groupe au cours de chaque année ultérieure; que la subvention soit assez généreuse pour pourvoir chaque année à au moins deux examens et aux soins évidemment nécessaires à chaque enfant." On suggère que le programme couvre éventuellement tous les enfants jusqu'à 18 ans. On recommande, de plus, en marge de ce programme, qu'on établisse des cliniques dentaires dans les hôpitaux, les centres d'hygiène publique, les écoles, les unités sanitaires et autres centres de santé ou cliniques mobiles. La rémunération des dentistes travaillant à ces régimes — soit à plein temps, soit périodiquement — serait comparable au revenu qu'un dentiste peut retirer de l'exercice privé. Ces dentistes dirigeraient le travail des centres dentaires. Dans les régions où aucune de ces dispositions n'est possible, il faudrait conclure une convention particulière avec des dentistes exerçant à titre privé. Le rapport ne donne pas de détails au sujet de cet aspect des services, mais quant aux services médicaux, on suggère le régime des honoraires basé sur un barême d'honoraires maximums

sans frais supplémentaires. Le régime de traitements des enfants serait financé par des octrois fédéraux et provinciaux tirés des fonds généraux, sans primes d'assurances particulières.

La Commission, pour aider les dentistes à prodiguer les services destinés aux enfants, recommande l'utilisation 'd'auxiliaires dentaires.' L'opinion de la Commission à ce sujet est bien définie et elle portera certes à des controverses. Le rapport déclare à ce propos:

"Nous reconnaissons que notre proposition provoquera peut-être une certaine opposition provisoire, aussi bien parmi les dentistes eux-mêmes qu'à l'extérieur de la profession, mais nous constatons que l'hygiène dentaire est dans un état déplorable dans notre pays, que les dentistes et les professeurs qualifiés d'art dentaire se font rares et qu'il faut du temps pour aménager de nouvelles écoles dentaires: tous ces facteurs exigent des mesures d'urgence. En outre, les mesures que nous proposons ont connu du succès en Nouvelle-Zélande et présentement elle font l'objet d'expériences et d'études en Grande-Bretagne. Nous croyons que le Canada peut mettre au point un programme fructueux et que toutes les personnes qui se préoccupent de l'hygiène dentaire de nos enfants appuieront nos recommandations sans réserves.

"Notre proposition tend à former, comme on l'a fait en Nouvelle-Zélande et comme on le fait maintenant en Grande-Bretagne, des auxiliaires qualifiées pour nettoyer les caries et faire l'obturation des dents des enfants sous une stricte surveillance pré-clinique et clinique. Elles seraient aussi qualifiées pour enseigner l'hygiène dentaire et elles seraient en mesure de donner aux gens des directives sur les soins à se donner.

"Il est fondamental que ces auxiliaires ne soient autorisées à exercer que sous la surveillance d'un dentiste licencié et uniquement dans le cadre du Régime de soins dentaires destinés aux enfants."

Le rapport continue en disant que ces auxiliaires peuvent être formées en deux ans d'études dans une faculté dentaire ou un institut technologique surveillé par une faculté d'art dentaire. On dit qu'il faudra 1,000 de ces auxiliaires en 1968 (ce qui veut dire que le Régime commencerait en 1966) et qu'à partir de 1971, il en faudrait 1,500, chaque année. La Commission suggère que, pour établir le curriculum de ces deux ans d'études, les doyens des facultés dentaires travaillent de concert avec un comité consultatif de la formation des auxiliaires dentaires, formé de représentants de l'A.D.C., des Collèges ou Conseils des dentistes de chacune des provinces, du Bureau national d'examen dentaire, du Conseil national de santé, de l'Association des médecins de langue française du Canada, de l'Association médicale canadienne (section de la pédiatrie), de l'Association des femmes canadiennes et du directeur de la Division de l'hygiène dentaire du Ministère de la santé nationale et du bien-être social.

On reste déçu en comparant ces suggestions avec celles de l'Association dentaire canadienne. La profession a manifesté son opposition à un système complet de traitements pour tous les groupes d'âge, mais elle déclarait que si le gouvernement décidait d'établir un régime national, ce programme devrait se limiter aux enfants et se faire sur une échelle progressive. Le mémoire de l'A.D.C. suggérait que ces traitements soient prodigués par les dentistes dans leur cabinet privé plutôt que dans des cliniques installées dans ce but; que le paiement des honoraires se fasse selon un régime d'honoraires plutôt que sous la forme de salaires; que le régime soit administré par des corporations provinciales de services dentaires sans but lucratif, patronisées par la profession plutôt que par le gouvernement; que les services soient d'abord limités par des priorités plutôt que des "soins évidemment nécessaires à chaque enfant;" et que les auxiliaires soient formées dans des facultés dentaires plutôt que dans des instituts technologiques.

Le mémoire de l'Association encourageait aussi l'utilisation des auxiliaires, mais en observant le principe que tous les traitements exigeant une formation professionnelle et les connaissances scientifiques d'un dentiste, tels que l'établissement d'un diagnostic, le plan d'un traitement, la taille des tissus, etc. demeurent l'apanage de celui-ci. Il suggérait que des recherches soient entreprises dans les

facultés dentaires pour étudier comment les services d'auxiliaires reconnues pourraient être amplifiés, plus spécialement dans le domaine de la prévention, de l'éducation et de la technique. Le nouveau genre d'auxiliaires recommandé dans le rapport aurait la permission d'entreprendre des traitements pour lesquels la profession ne croit pas que deux ans d'entraînement seraient suffisants. Ces auxiliaires, de plus, prodigueraient ces traitements à des enfants et de jeunes adultes, et cette catégorie exige la meilleure qualité de services de prévention et de traitements, si on veut que ces traitements aient une répercussion notable dans la vie adulte de ces individus.

Le système d'infirmières dentaires de la Nouvelle-Zélande n'est pas sans mérites. Cependant l'A.D.C. croit sincèrement que leur cours de deux ans ne leur donne pas les connaissances suffisantes dans certaines matières, comme par exemple, la croissance et le développement des maxillaires et de la face, les problèmes dentaires du jeune enfant, les rapports du processus nécrotique et inflammatoire avec les dégats pathologiques qu'il entraîne dans les tissus péridentaires, etc., pour qu'elles assument des responsabilités dans le diagnostic et le plan de traitement. De plus, des traitements de maladies récidivantes basés uniquement sur la restauration ne peuvent que perpétuer la maladie. On peut actuellement réduire l'incidence de la carie dentaire par la fluoration et par des procédés préventifs reconnus appliqués dans le cabinet du dentiste et à domicile; cela signifie qu'on pourrait rendre des services beaucoup plus effectifs aux enfants de moins de dix-huit ans en demandant aux auxiliaires de concentrer leurs efforts sur l'aspect préventif des traitements et de laisser la responsabilité au dentiste de poser les diagnostics, d'élaborer les plans de traitements, de tailler les tissus — fonctions qui exigent ses connaissances scientifiques. Cela ne veut pas dire que les tâches des auxiliaires présentes, nommément les hygiénistes dentaires, ne pourraient pas ou ne devraient pas être augmentées pour leur permettre de rendre plus de services; mais cette extension devrait se faire dans le domaine éducationnel, préventif et technique. L'aspect éducationnel et préventif de la chirurgie dentaire, chez l'enfant, devrait primer l'aspect curatif.

Le rapport de la Commission renferme d'autres recommandations, telles que la mise en force de programmes d'éducation en hygiène publique dans tous les secteurs ou les unités sanitaires; une enquête sur l'hygiène dentaire, y compris le maintien de l'Indice de santé dentaire établi par l'Association dentaire canadienne; une attention spéciale aux besoin dentaires des enfants physiquement ou mentalement handicappés, en leur facilitant l'admission à l'hôpital pour leur administrer un traitement dentaire indispensable; la fluoration de toutes les canalisations communautaires d'eau potable au Canada et l'adoption de moyens de répondre aux besoins de fluorures des régions qui n'ont pas de canalisation communautaire. Toutes ces suggestions sont excellentes et elles concordent avec la politique de l'A.D.C.

Selon le rapport, les femmes enceintes et les bénéficiaires de l'assistance publique recevraient les traitements dentaires dont ils ont besoin. Les dentistes exerçant à titre privé prodigueraient ces services aux futures mères et aux indigents, soit dans leur cabinet, soit dans des dispensaires d'hôpitaux ou dans des cliniques, selon les dispositions prises dans chacune des provinces.

Le rapport déclare, quant aux services dentaires dans les hôpitaux, que tous les grands hôpitaux généraux établissent un département de chirurgie dentaire pour prodiguer des services aux patients hospitalisés comme à ceux des dispensaires; qu'un directeur du service dentaire soit désigné; que des dentistes qualifiés soient intégrés au personnel de l'hôpital; et que des centres de traitement des becs-de-lièvre soient établis dans les hôpitaux d'enfants et dans les hôpitaux généraux qui possèdent déjà les services pédiatriques et connexes appropriés.

Toutes ces recommandations, excepté

celles touchant aux femmes enceintes et aux bénéficiaires de l'assistance publique, ont déjà été faites par la plupart des organismes dentaires du Canada.

Le rapport constate que la proportion des dentistes en rapport à la population est déficiente et continuera de l'être encore quelques années, malgré l'amélioration qui devrait se produire à la suite de l'adoption générale de la fluoration et du régime pour les enfants. On recommande, pour obvier le plus tôt possible à cette situation déplorable, que les facultés dentaires de Dalhousie, de Manitoba, de McGill, de Montréal et d'Alberta soient agrandies et renovées. De plus, cinq nouvelles facultés devraient être créées d'ici dix ans aux universités d'Ottawa, Western Ontario, Laval, Saskatchewan et Colombie britannique, où une école est déjà à s'organiser.

On propose d'encourager les étudiants à embrasser la carrière de dentiste et les diplômés à poursuivre leurs études et à se spécialiser. Par exemple, chaque étudiant qui a un dossier académique convenable recevrait $2,000 pour chacune de ses deux dernières années d'études. Les frais de scolarité, les frais de voyage et de subsistance pour des cours d'études graduées à des facultés dentaires seraient déductibles pour fins d'impôt sur le revenu. Des octrois de $5,000 seraient versés aux dentistes qui entreprennent des études en hygiène publique, en vue d'une spécialisation ou en vue de l'enseignement; cette spécification fait partie du programme intensif de sept ans. De plus, on suggère de songer à des subventions aux dentistes qui iraient exercer dans les campagnes et aux spécialistes qui installeraient leur cabinet dans des centres de population moyenne.

Le rapport mentionne aussi des moyens d'augmenter le volume de la recherche dentaire, la proportion des professeurs à plein-temps dans les facultés et la durée de l'année académique pour diminuer le temps nécessaire à l'obtention du diplôme de dentiste. On appuie sur la nécessité d'accentuer les campagnes de recrutement pour amener des campagnes ou des petits centres plus de jeunes gens, garçons et filles, aux études dentaires; et on constate qu'il serait désirable que des collèges des dentistes ré-étudient leurs exigences pour l'admission de dentistes étrangers, de façon à augmenter le nombre de dentistes.

Le rapport souligne qu'il faudra contribuer financièrement à la mise en œuvre de toutes ces recommandations, y compris l'aide aux écoles technologiques pour l'entraînement des techniciens et des assistantes dentaires. Il ne convient pas ici, à cette heure, de discuter l'angle financier de ces propositions destinées à prodiguer des services de santé aux Canadiens. Qu'il suffise de dire que la Commission recommande au gouvernement fédéral d'établir une Subvention à la formation professionnelle, une Subvention à la formation technique et professionnelle, une Aide fédérale aux universités pour les professions de santé, un Fonds d'expansion des installations de santé et une Subvention à l'hygiène infantile; ces octrois seraient offerts aux provinces qui y contribueraient de différentes façons selon les projets à être financés. Les contribuables, si le plan de santé est appliqué dans son entier, peuvent s'attendre à débourser, d'une façon ou de l'autre, des sommes considérables. La Commission estime que, si le Régime des services de santé est mis en œuvre, la proportion des dépenses effectuées pour la santé par rapport avec la Dépense nationale brute en totalité serait de l'ordre de 6.4 pour cent en 1971, ce qui serait environ un demi de un pour cent de plus que la proportion actuelle envisagée à cette époque.

La Commission note dans son rapport que la recherche en médecine n'est plus l'unique champ de recherche en matière de santé. Des recherches s'effectuent de plus en plus dans des secteurs connexes et qu'il en faut de plus en plus. Les problèmes économiques et sociaux suscités par les services de santé exigent des recherches sérieuses et approfondies. Il faut établir des normes qui serviront de points de comparaison pour l'avenir. Ces questions et plusieurs autres sont mentionnées

pour montrer la complexité de tout le problème des services de santé et leur interrelation de plus en plus considérable avec divers programmes de recherches.

Le rapport recommande, pour tenter de coordonner efficacement tous les programmes que le Conseil des recherches médicales actuel soit élargi de façon à englober toute la recherche ayant trait à la santé; il faudrait que les termes de son mandat et que son budget soient augmentés et qu'il devienne le 'Conseil de recherches en sciences de santé.' Ce nouveau conseil serait constitué de représentants de toutes les disciplines s'occupant de la santé; son président serait un profane et il distribuerait tous les fonds de recherches en santé. Au sujet de la chirurgie dentaire et de ses rapports avec ce conseil, il est dit que ce conseil verrait à augmenter le volume des recherches sur les maladies dentaires et leur prévention en organisant ses propres recherches et en augmentant ses octrois aux universités. Il augmenterait aussi le nombre des associés en recherche dans les facultés dentaires et verrait à créer des bourses pour les jeunes diplômés qui ne sont pas encore qualifiés comme associés en recherche. Il aiderait à élaborer et à maintenir un système permanent de statistiques de santé au Canada, y compris la continuation de l'Indice de santé dentaire établi par l'A.D.C.

Il se peut que la chirurgie dentaire éprouve certaines difficultés à obtenir des octrois du Conseil des recherches en sciences de la santé, quand elle viendra en concurrence avec d'autres disciplines; mais les recommandations au sujet de la coordination des recherches peut nous rassurer. Notre profession serait protégée par une représentation convenable au sein du Conseil.

Il y a deux autres questions qui ne sont pas touchées par les recommandations spécifiquement dentaires et qui intéressent particulièrement la profession. La première de ces questions traitée dans la première section des bénéfices pour les services médicaux est de déterminer les personnes qui ont droit à ces services, quand ceux-ci sont prodigués par des dentistes au lieu de médecins. Il y a des problèmes qui ont été soulevés depuis peu surtout par les chirurgiens buccaux au sujet du caractère distinctif de certains plans de traitements médicaux qui excluent plusieurs services qui relèvent du domaine du dentiste au point de vue compétence et légalité, quand ces services sont prodigués par des dentistes, mais qui les acceptent quand ils sont prodigués par des médecins. On a un exemple de cette discrimination dans le bill no 163 actuellement devant la Législature d'Ontario, où un groupe de médecins veut faire passer une loi, appelée Medical Services Insurance. Selon certaines clauses de cette loi, un patient ne peut pas obtenir de remboursement pour des services qui sont légalement et généralement prodigués par des dentistes, à moins que ces services aient été donnés par des médecins. Cependant le rapport de la Commission royale recommande que des services médicaux complets soient à la portée de tous les citoyens selon un régime d'honoraires et que, pour le moment, du moins, seuls les enfants jusqu'à l'âge de 18 ans, les femmes enceintes et les bénéficiaires d'assistance publique puissent bénéficier d'un régime de traitements dentaires; néanmoins, on peut aussi y lire que les bénéfices des traitements médicaux devraient inclure comme services assurés seulement ces services dentaires prodigués par un dentiste comme chirurgie maxillo-faciale. En d'autres mots, la Commission recommande que les services de chirurgie maxillo-faciale soient compris comme services assurés, qu'ils soient prodigués par des dentistes ou des médecins. Le rapport, pour expliquer son attitude sur ce point, donne deux raisons pour inclure seulement au nombre des bénéfices les services de chirurgie pratiquée par les dentistes en chirurgie maxillo-faciale. Une des raisons réside dans le petit nombre des chirurgiens buccaux et ceux-ci seraient très occupés par le régime dentaire destiné aux enfants; l'autre est la difficulté de départager les services dentaires qui devraient être inclus dans un programme qui

doit être d'abord de caractère médical de ceux qui ne devraient pas l'être. Le fait demeure, malgré la difficulté réelle qu'il y a à limiter les services qui doivent être inclus, qu'il y a tout de même des services qui sont communs aux deux professions et qui ne sont pas compris dans la liste des services dentaires. C'est pourquoi, sous ce rapport, le plan 'repose sur l'injustice et la discrimination.'

La deuxième question a trait à certaines omissions. Les ordonnances médicales, dans le Régime des services de santé, sont comprises dans les bénéfices. Pour aider à l'organisation de ce service, le rapport recommande: "Que les fonctions du Comité consultatif des médicaments, chargé de conseiller le Ministère de la santé nationale et du bien-être social, soient élargies et qu'on ajoute au personnel de cet organisme des représentants de l'Association médicale canadienne, de l'Association des médecins de langue française du Canada, de l'Association des pharmaciens du Canada, de l'Association des hôpitaux canadiens, des Ecoles provinciales de pharmacie, des Collèges provinciaux de pharmacie et des Ministères provinciaux de la santé." On ne fait pas mention de la chirurgie dentaire. Cette omission n'est pas justifiable, car des médicaments se prescrivent de plus en plus dans les cabinets dentaires.

De même, dans une autre recommandation, le rapport suggère la publication périodique de bulletins donnant les plus récentes nouvelles au sujet des médicaments et de la thérapeutique à l'intention des médecins, des pharmaciens et des hôpitaux. Les dentistes auraient dû être ajoutés à cette liste.

Enfin, il est intéressant de noter que le rapport déclare que le gouvernement fédéral devrait diriger tout le régime personnel des services de santé. Il souligne la nécessité d'une étroite collaboration à tous les échelons du gouvernement et des professions de santé; il suggère la tenue d'une conférence fédérale-provinciale dans les six mois qui suivent pour constituer des comités consultatifs et des conseils de planification. Il recommande de plus pour les provinces un certain degré d'autonomie pour l'établissement des programmes de services de santé. Par exemple, les provinces auraient le droit de fixer des priorités pour chacun des services et la liberté de les appliquer quand bon leur semblerait; mais les provinces, pour bénéficier de l'appui financier fédéral, devraient souscrire aux principes énoncés dans la Charte de santé.

La Commission, au sujet des services dentaires, donne beaucoup d'importance aux enfants. Au cours de cette causerie, nous avons parlé des recommandations que contient le rapport au sujet des traitements dentaires et il serait fastidieux d'y revenir. Cependant, il convient de suggérer, puisque ces plans débuteront au niveau provincial et puisque la dentisterie sera directement intéressée à prodiguer quelques-uns de ces services, que, dans chaque province, on forme un comité pour étudier chacune des recommandations du rapport, pour être préparé à conseiller d'une façon pertinente les conseils consultatifs et de planifications provinciaux.

Tout dentiste intéressé aux services de santé devrait lire attentivement le rapport. Son objectif est "le meilleur état de santé possible". La Commission espère le réaliser par la participation la plus considérable du gouvernement jamais vue. Cette attitude a été prise par presque tous les pays du monde. Que cette tendance nous plaise ou non, elle est à nos portes; la chirurgie dentaire est concernée. Il nous faudra avoir des idées claires sur le sujet; il faudra nous unir, si nous voulons maintenir les principes que notre profession envisage et en même temps nous adapter et adapter notre exercice professionnel aux modifications qui s'établissent constamment au sein des services de santé. A ces deux conditions seulement, la profession pourra continuer à améliorer ses standards et à les prodiguer à tous les Canadiens.

234 rue St-Georges

Reducing activity of human whole saliva as related to dental caries experience

I. L. Shannon, D.M.D., M.S.D. and W. A. Gibson, D.D.S., M.S.,†*
Brooks Air Force Base, Texas, and H. H. Chauncey, Ph. D., D.M.D.,
Boston, Massachusetts

Whole saliva reducing determinations were carried out with a colorimetric diazoresorcinol test. The test was not of diagnostic value for predicting caries activity in individuals.

On a calculé la réductase de la salive à l'aide d'un test colorimétrique au diazo resorcinol. Ce test n'a pas de valeur au point de vue diagnostic carie dentaire.

There has long been a need for a simple, reliable test for caries susceptibility in human subjects. Two specific types of tests could be of value in this regard: tests which yield results that are significantly correlated with caries susceptibility when means and variances for large groups of subjects are considered statistically, or tests that are of diagnostic or prognostic value for the individual being evaluated. The U. S. Air Force Dental Service has an assigned mission of oral health maintenance for astronauts. As space flights become more commonplace and more prolonged, the ability to predict any facet of oral health impairment becomes increasingly important. Predictability must be such that reliable prognostic conclusions can be drawn for the individual being tested. Stringent performance requirements should be assigned to any procedure offered as diagnostic or prognostic. When a suggested method is evaluated, close scrutiny should be given to exactly how the results apply both to the group and to the individuals therein.

Analysis of salivary enzyme activity can be a valuable technique for determining natural or induced variations in the growth and metabolism of the oral flora[1] and for studying the influence of saliva on the oral structures.[2] Recently, a colorimetric test based on reducing activity of saliva has been employed to measure the conduciveness of the oral environment to

From the Department of Experimental Dentistry, United States Air Force School of Aerospace Medicine, Brooks Air Force Base, Texas, and the Department of Dental Science and Research, Tufts University School of Dental Medicine, Boston.
*Major, U. S. Air Force (DC).
†Captain, U. S. Air Force (DC).
The opinions expressed herein are not necessarily representative of U. S. Air Force policy.

TABLE 1 Frequency distribution of DMFS values for each test score class.

Reductase score classes	Sum of decayed, missing, and filled surfaces (DMFS)											Number of subjects
	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	>49	
1.0	1	0	3	5	4	4	0	1	0	1	0	19
1.5	3	4	8	9	5	4	4	5	1	3	1	47
2.0	6	12	21	29	23	18	16	11	9	4	16	165
2.5	5	11	12	6	5	8	4	4	3	2	2	62
3.0	2	7	9	9	8	6	3	4	5	5	2	60
>3.0	2	6	0	7	7	3	3	6	4	6	5	49
Total	19	40	53	65	52	43	30	31	22	21	26	402

dental caries activity.[3] In a later investigation,[4] salivary reducing activity was not correlated with caries activity but was significantly correlated with the number of salivary anaerobes present. The present study was designed to evaluate the performance of this reducing activity test in a large group of human subjects under carefully controlled experimental conditions.

Materials and methods

Subjects were 402 males between the ages of 17 and 22 years, who had been found physically qualified for military service by recent medical examination. Each received a thorough clinical and bitewing radiographic examination, and records were prepared so that the sum of the decayed, missing, and filled surfaces (DMFS) could be calculated. All examinations were performed by the same individual.

Subjects ate lunch between 12:00 and 12:30 p.m., and no oral intake of any sort was allowed after completion of the meal. Subjects were not allowed to institute oral hygiene procedures of any sort following the noon meal. At 3:00 p.m. each subject was given the colorimetric diazoresorcinol (Treatex, C. W. Erwin and Company, Chicago) test in accordance with the instructions provided with the test kit. Paraffin-stimulated whole saliva was collected in a plastic vial to a volume approximating 5.0 ml. The cap was replaced on the collection vial, and the vial was shaken for 30 seconds. The saliva was thus mixed with the dried diazoresorcinol reagent present on the inner surface of the cap. Results were based on subsequent colour changes of the reagent-saliva mixture.

TABLE 2 Frequency distribution of carious surface values for each test score class.

Reductase score classes	Carious surfaces													Number of subjects
	0	1	2	3	4	5	6-7	8-9	10-14	15-19	20-24	25-29	>29	
1.0	3	2	3	2	1	1	1	1	1	3	1	0	0	19
1.5	5	6	8	3	8	3	5	3	3	0	1	1	1	47
2.0	7	18	13	14	7	14	20	20	26	9	8	4	5	165
2.5	6	3	9	8	7	6	4	3	11	3	2	0	0	62
3.0	3	3	7	5	3	3	7	8	7	5	3	2	4	60
>3.0	8	3	5	3	3	3	3	3	5	5	2	3	3	49
Total	32	35	45	35	29	30	40	38	53	25	17	10	13	402

TABLE 3 Quartiles and semiquartile ranges for DMFS and for carious surface values for each test score class.

Reductase score classes	DMFS				Carious surfaces			
	Quartile			Semiquartile range	Quartile			Semiquartile range
	1	2	3		1	2	3	
1.0	16.0	21.0	27.0	11.0	1.0	3.0	12.0	11.0
1.5	12.0	19.0	31.0	19.0	2.0	4.0	6.0	4.0
2.0	15.0	23.0	34.0	19.0	3.0	6.0	11.0	8.0
2.5	9.0	16.5	28.0	19.0	2.0	4.0	10.0	8.0
3.0	13.0	22.5	36.0	23.0	3.0	7.0	12.5	9.5
>3.0	15.5	29.0	44.0	28.5	2.0	5.0	16.5	14.5

TABLE 4 Means and standard deviations for DMFS and for carious surface values for each test score class.

Reductase score classes	Number of subjects	DMFS		Carious surfaces	
		Mean	S.D.	Mean	S.D.
1.0	19	21.5	9.91	6.3	6.71
1.5	47	22.1	12.93	5.4	7.13
2.0	165	26.1	16.22	8.8	9.27
2.5	62	20.4	13.50	6.0	5.27
3.0	60	24.5	15.28	10.6	12.31
>3.0	49	29.1	16.45	9.8	10.99

For the statistical analyses each subject was placed in one of six test score classes. Instructions provided with the test kit directed that the results be classified as class 1, 2, 3, 4, or 5. For reasons that will be discussed later, the participants in the present study were divided into six test score classes: 1.0, 1.5, 2.0, 2.5, 3.0, and above 3.0. Subjects were grouped according to test score classes, and means and standard deviations for both DMFS and the number of carious surfaces were calculated for each class. Frequency distribution analysis and chi-square testing (performed on reduced contingency tables) were also carried out.

Results

The frequency distributions for DMFS and carious surface findings for the entire group of 402 subjects are presented in Tables 1 and 2. For DMFS, 14.7 per cent of the subjects had less than 10 involved surfaces, while at the other extreme, only 6.5 per cent had 50 or more involved surfaces. For all participants, the mean for DMFS was 24.6 (S.D. = 15.3). For carious surfaces, 70.6 per cent of the subjects were placed in groups with less than 10 surfaces involved, while only 3.2 per cent presented 30 or more carious surfaces. The overall mean for carious surfaces was 8.2 (S.D. = 9.33). For statistical analysis the lowest two test score classes were combined, and the same procedure was followed with the highest two classes. Likewise, certain of the DMFS groups and the carious surface groups were combined. The reduced contingency tables were tested by chi-square analysis. The DMFS distributions were not significantly different for the test score classes.

There was some indication of differences for the carious surface distributions; however, none of these differences reached the .05 level of significance. In Table 3 the quartiles for each test score class for DMFS and for carious surfaces are presented. The semiquartile range (the difference between the first and third quartiles) is also given for each distribution. This can be employed as another measure of variability.

In Table 4 the subjects were divided into the six test score classes, and means and standard deviations for DMFS and for carious surfaces were calculated for these classes. The findings indicate a trend of higher reducing activity for subjects with higher DMFS scores and larger numbers of carious surfaces. There was extensive overlap of values between groups, and the wide spread of the observations within each mean is evidenced by the large standard deviations. As an example, the scatter of the carious surface values within each test score class was such that in five of six instances the standard deviation exceeded the mean.

Since there were indications of differences of borderline significance (P probably less than .06) in the carious surface distributions, these carious surface frequencies were transformed into percentages and the results are given in Table 5. For the test score class to be a good indicator of the number of carious surfaces present, the larger percentages would have to occur with the smaller number of carious lesions for a low test score class, and occur with increasing numbers of carious surfaces for the higher test score classes. There was no such consistent trend present in these frequency distributions.

Discussion

The reducing test has been offered as a measurement of caries conduciveness of the oral environment. Rapp[3] points out that teeth develop caries because they are susceptible to decay and because their environment is conducive to the process. He classifies susceptibility as being inherent in the tooth structure itself and feels that susceptible tooth substance will not decay unless it is exposed to a caries-conducive environment. The clinical portion of the present study represents primarily an evaluation of caries experience, and it is impossible to predict subsequent change. However, certain guarded implications concerning future caries activity could be drawn from such clinical evaluations. One might expect that patients with a large number of open carious lesions would possess an oral environment more conducive to further caries activity than those patients who had remained relatively free of decay. This is particularly true since Rapp[3] states that such a conducive oral environment consists of "microbial flora, nutrients, and breeding areas, relatively undisturbed on the surface of the enamel at first and, once the cavity has been initiated, in the subsurface." The conduciveness of the oral environment, according to this definition, should then be measurable, to some extent, as the number of tooth surfaces exhibiting open carious lesions.

TABLE 5 Carious surface frequencies transformed into percentages for each test score class.

Reductase score classes	Carious surfaces										
	0	1	2	3	4	5	6-7	8-9	10-14	15-19	>19
<2.0	12.1	12.1	16.7	7.6	13.6	6.1	9.1	6.1	6.1	4.5	6.1
2.0	4.2	10.9	7.9	8.5	4.2	8.5	12.1	12.1	15.8	5.5	10.3
2.5	9.7	4.8	14.5	12.9	11.3	9.7	6.5	4.8	17.7	4.8	3.2
>2.5	10.1	5.5	11.0	7.3	5.5	5.5	9.2	10.1	11.0	9.2	15.6

Rapp[3] carried out a 12-month clinical trial on 250 children between seven and 12 years of age. Four reducing tests were performed for each child, and these results were averaged to assign a single conduciveness score to each child. The average number of new carious lesions experienced in each of the classes was also calculated. The four conduciveness classes were 1-2, 2-3, 3-4, and 4-5. Average new caries experience for each class was 0, 1.3, 3.5, and 4.6 cavities respectively. Rapp concluded that the data showed very clearly the predictive value of the test.

In the present study, considerable difficulty was experienced in the interpretation of the colour change produced in the test. The test directions divide the results into classes 1, 2, 3, 4, and 5, and describe the colours produced as blue after 15 minutes, orchid in 15 minutes, red in 15 minutes, red immediately on mixing, and white in 15 minutes, respectively. Class 1 would indicate a nonconducive mouth; class 2, slightly conducive; class 3, moderately conducive; class 4, highly conducive; and class 5, extremely conducive. While this study was in progress, directions for interpreting class 5 were changed by the supplier to include those specimens that were white and pink in 15 minutes.

Classification of saliva samples into classes 1, 2, and 3 could be achieved with no difficulty. One individual classified all of the samples, and each was read against a white background. A control was prepared by adding 5.0 ml. of distilled water instead of saliva. By this procedure, it was possible to add classes 1.5 and 2.5 to the scoring scale. Interpretation of the higher scores was unreliable in our hands. As an example, some samples contained sediment which settled out rapidly, and the sample finally divided into two or even three different coloured layers. The bottom layer usually was colourless after 15 minutes. Above this, however, there could be found either a single layer, red or orchid in colour, or two distinct layers, one red and one orchid. A personal communication from the company which manufactures the test kits admitted a particular difficulty in interpreting the class 4 specimens and a lack of a clear-cut reading for class 5 specimens. In the present study, all samples with a more positive change than the development of a frank red colour after 15 minutes were assigned to a "higher than 3.0" category.

Since there was an indication in the present study that higher test score means were associated with higher caries activity in groups of subjects, applicability to the individual subject was investigated. Within-class calculations were made to evaluate the possibility of using this test diagnostically. Of particular interest was the group of subjects with low caries experience, since Rapp[3] found that for his subjects with overall caries conduciveness scores of 1 to 2, the caries experience over 12 months was zero. In the present study, 67 subjects were found to have carious surface scores of 1.0 or zero. Of these subjects, five were in class 1.0; 11 were in 1.5; 25 were in 2.0; nine were in 2.5; six were in 3.0; and in 11, the values exceeded 3.0. Thus, 61.2 per cent of these subjects were in class 2.0 or below, while 38.8 per cent were in class 2.5 or above.

At the other extreme, 65 subjects were found to present 15 or more carious surfaces. Of these subjects, four were in class 1.0; three were in 1.5; 26 were in 2.0; five were in 2.5; 14 were in 3.0; and 13 were over 3.0. Thus, 50.8 per cent of these 65 participants were in class 2.0 or below, while 49.2 per cent were in class 2.5 or above. The number of subjects with high and low test scores in each of these two clinical extreme groups makes it quite clear that this test, as performed, possesses no diagnostic potential for individuals.

The data were then analyzed with the test classes somewhat more in accord with the supplier's instructions. Class 1.0 was made to include both the 1.0 and 1.5 readings, and class 2.0 was enlarged to include both the 2.0 and 2.5 values. The 3.0 class was unchanged, and all readings above 3.0 were grouped together. The DMFS and carious surface means for these groups

TABLE 6 Means for DMFS and carious surface values for certain combined test score classes.

Reductase score classes	Number of subjects	DMFS mean	Carious surfaces mean
1.0	66	21.9	5.7
2.0	227	24.5	8.0
3.0	60	24.5	10.6
>3.0	49	29.1	9.8

are shown in Table 6. Again, a trend of higher mean values for reducing activity for persons with higher DMFS scores and higher numbers of carious surfaces was noted. It was again established, however, that the test was not reliable as a diagnostic tool when applied to the individual subject.

While the results of the present study question the value of the diazoresorcinol test in determining the caries status of the individual patient, the trend for higher test scores might well merit further investigation. Furthermore, the results of the present study apply only to the very narrow age group tested; caries increments over a period of time were not considered, and the scoring system was slightly modified.

Summary

Whole saliva reducing determinations were carried out on 402 systemically healthy young adult males. A diazoresorcinol test was employed in these measurements. Results were compared to DMFS scores and the number of carious surfaces present. There was a trend of higher reducing activity for persons with higher DMFS scores and more carious surfaces, but the test was not of diagnostic value for individual subjects.

Addendum

Other investigators have questioned the value of the diazoresorcinol test as an indicator of caries conduciveness. Since this paper was prepared for publication, Mandel and Zengo,[5] in a discussion of salivary reducing activity, stated: "As Rosen and Weinstein concluded, we also feel that the Treatex Test does not appear to be an accurate measure of caries activity or conduciveness and its usefulness as such appears doubtful."

Résumé

On a calculé systématiquement la réductase de la salive totale chez 402 jeunes gens en santé, à l'aide d'un test colorimétrique au diazoresorcinol, disponible sur le marché. On a comparé les résultats de ce test avec les données d'examens DMFS et le nombre des surfaces actuellement cariées. On a noté une activité de réductase plus considérable chez les personnes ayant un taux plus élevé de DMFS et plus de surfaces cariées; cependant on s'est rendu compte que ce test n'a pas de valeur au point de vue diagnostic chez les individus pris un à un.

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U. S. Air Force School of Aerospace Medicine, Brooks Air Force Base, Texas

The pro-fluoridationist accepts fluoridation as a preventive measure against dental caries. The opponent rejects the issue for various reasons, all of which fit a basic frame of reference that determines his initial response.

■

Les personnes qui votent en faveur de la fluoration désirent cette mesure parce qu'elle prévient la carie dentaire. Par ailleurs, ceux qui votent contre ont une multitude de raisons qui peuvent se classifier dans un concept général motivant leur réaction. Ce concept ne s'applique pas seulement aux mesures de santé, mais il constitue plutôt un mode de vie fondamental.

The nature of opinions on fluoridation

D. G. Fish, M.A., Ottawa, Ontario, and G. K. Hirabayashi,† Ph.D., Edmonton, Alberta*

Previous articles in this series have dealt with interest in the issue of fluoridation,[1] the social characteristics of those for and against the issue,[2] the influence of politics on opinions of the issue,[3] and voting turnout at a plebiscite.[4] In this paper we examine more closely what kind of opinions people have about fluoridation with special attention to the anti-fluoridation attitude.

Method

The data in this paper were gathered in a city-wide sociological survey on fluoridation in Edmonton, Alberta. A sample of 364 was randomly drawn from the population and this sample was interviewed using trained interviewers and an interview schedule as described in a previous paper.

The respondents were asked to indicate their opinion on fluoridation on a seven point scale with 1 meaning 'definitely in favour' and 7 meaning 'definitely opposed' to the issue. Following this question, the respondents were asked, "why do you feel this way?" This latter question was designed to give the individual an opportunity to discuss fluoridation freely and without the restriction of questions requiring a specific yes or no answer.

*Research associate, Association of Canadian Medical Colleges, Ottawa.
†Professor of Sociology, University of Alberta.
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At the end of the interview, the respondent was given two lists of statements about fluoridation. These statements were derived from propaganda sources from both 'pro' and 'anti' sides of the issue and represented in brief capsule form the arguments both for and against the issue. Twenty-one statements were favourable and 21 were unfavourable to the issue. Respondents were required to check those statements with which they agreed. Approximately one-third of the respondents refused to do so or felt that they could not check any of the items with any degree of certainty. This is, of course, not surprising since 36 per cent of the sample had assigned themselves to the category of "indifferent or undecided" about the issue of fluoridation.

Results

This paper is only concerned with those who were definitely opposed or definitely in favour of fluoridation — that is, those who checked 6 and 7, and 1 and 2 respectively, on the attitude to fluoridation scale.

Pro-fluoridation Opinion. — Of the 167 sample subjects that were definitely in favour of fluoridation, only four believed that fluoridation purified the water. The remainder of the respondents stated that fluoridation produced a reduction in tooth decay. Very few respondents expanded on this theme and it seems that pro-fluoridation opinion is largely composed of the simple acceptance of the main purpose of adding fluoride to the water.

However, a number of remarks were recorded which suggest possible lines of investigation for future studies. One respondent had a son who was a dentist in Calgary and since he was in favour, she followed suit. Another respondent who was against the issue at the time of the plebiscite had subsequently talked to her dentist and changed her mind. A respondent who had read a book by a nutritionist claimed this had swayed her in favour of the issue. Another respondent felt that the information that her boy had brought home from school was most important in reaching her decision. These examples all suggest that many people turn to significant reference groups and authority figures for their decision on the fluoridation issue.

Another group maintained that either their own or the children's health provided an orientation point for making a decision on the issue. Thus one respondent said, "I had a son who had difficulty with teeth — I am willing to try anything to help him!"

Personal experience with poor teeth was also a factor — as one respondent said, "No one should be allowed to suffer the way that I did." On the other hand, personal experience may also work in the other direction to create or support an anti-opinion. As one respondent said, "I still have all my teeth and I never had any fluorine."

Other comments were: "My teeth are O.K. until now—I don't see why we need it;" "Our children's teeth are all good—so we don't need it, that's for sure."

Some individuals looked beyond the immediate community and observed that other cities were using fluoridation with good effect. One respondent reported hearing that they used it with good results in Vienna. An immigrant from England observed that his family had had good teeth until they came to Canada. He attributed this sequence of events to the fluoride present in water in England but not present in Canada. More locally, a respondent reported that a sister in Fort McLeod had been much impressed by the benefits that she had reaped from fluoridation.

On the other hand, a sister of one respondent was said to have left Winnipeg because of the harm that fluoridation was doing to her teeth, while another respondent claimed that places in the United States had tried it and then "gone off it."

Basically, those in favour of fluoridation perceive it as an efficacious method

of preventing dental caries. But many factors influence the formation of this opinion. Significant reference groups, personal and familial dental health, and previous experience or knowledge of the health measure seem to play a considerable part in the opinion forming process.

Although most pro-fluoridation respondents did not elaborate the reason for their opinion, analysis of their responses to pro-fluoridation statements in Table 1 discloses rejection of the anti-fluoridationist's arguments against the issue. Thus, over 80 per cent of the respondents seem convinced that no harmful effects accrue from fluoridation and that teeth are not thereby mottled or stained. However, only 70 per cent agreed that the addition of fluoride does not change the taste, colour or odour of the water supply.

Interestingly only 60 per cent believed that the measure had been thoroughly investigated and endorsed by medical and dental authorities. Less than 50 per cent believed that the benefits last through a lifetime. This may be due to lack of specific knowledge rather than to uncertainty as to the truth of the statements. Lack of knowledge is reflected in the response to such specific questions as the cost of fluoridation, its presence in foods and liquids, and whether artificial fluoride is the same as natural fluoride.

Anti-fluoridation opinion.—The structure of the anti-fluoridation opinion had more variety than pro-fluoridation opinion probably because anti-fluoridation literature offers a variety of reasons for supporting the negative point of view. Responses to the interview question, "Why do you feel this way (about fluoridation)?" received from the convinced anti-fluoridationist are classified in Table 2.

The summarized presentation of these reasons in tabular form hides some aspects of individual anti-fluoridation argument. One respondent, for example, was convinced that city water was af-

TABLE 1 Percentage of pro-fluoridation respondents agreeing with various statements about fluoridation.

Essence of statement	Percentage of agreement*
Detrimental effects	
No harmful effects from accumulated fluorine	80
No disfiguration of teeth	86
No bearing on occurrence or progression of disease	77
No change in taste, odour or colour of water	70
No increase in radio-active materials in body	69
No harm to malnourished or elderly	80
Benefits	
Produces a reduction in tooth cavities	98
Thoroughly investigated and endorsed	60
Benefits last through a lifetime	42
Cost	
Annual cost 20c per person	45
Personal	
No more mass medication than chlorination	65
Naturalness of fluoride	
Fluorides are present in all foods and liquids	46
Artificial fluorides are same as natural fluorides	63

* N = 167.

TABLE 2 Reasons for anti-fluoridation opinions as given by respondents.

Reason for anti-fluoridation opinion	Percentage of respondents giving reason*	
Specific detrimental effects		
Poisoning	26	
Mottling of teeth	3	
Dangerous for sick people	10	
Dangerous for old people	5	
Bad taste	3	47
Commercial		
Proposed by commercial interests for own profit	10	
Can be done cheaper with individual drugs	16	26
Personal reasons		
Mass medication	42	
Pure water theme	19	61

* N = 62; some respondents gave more than one reason.

fecting her arthritis and felt that the added fluoride would only serve to make matters worse. Another argued that since fluoride destroys the calcium in milk, it would undoubtedly do the same to her bones!

An extreme 'commercial' point of view was epitomized by one respondent who claimed that the medical profession supports fluoridation so that drug companies engaged in fluoride manufacture would buy advertising space in medical journals. Other respondents were opposed on the grounds that individual administration of fluoride in, for example, toothpaste might be cheaper than adding the chemical to city water. The idea of individual administration of fluoride was, however, offered by some respondents as an alternative to mass medication. Mass medication was considered morally and ethically unjustified on the grounds that everyone has the right to take or decline medicine as he sees fit. A differentiation was made between fluoridation and chlorination. Thus, to quote one respondent, "Chlorine is necessary, fluoridation is not—you can get fluoridation in toothpaste." And, "It's O.K. if it's natural, like in Poland, but if you are going to add it, then put it in the toothpaste." This objection to fluoridation on the grounds of forced medication appears to be a rational and considered approach to the controversy. It admits, by implication, the efficacy of fluoridation in the prevention of tooth decay.

The 'pure water' theme, however, takes a more emotional view and argues that man's interference with natural phenomena represents a retrograde step in the benefits to be derived from nature. This argument found expression in such statements as: "There's too much dope in everything;" "I'm against insecticides;" "Kills off birds and bees, interferes with nature;" or: "It is like pasteurization of milk;" "haven't had a good drink of milk since they pasteurized it;" and bringing in the religious viewpoint: "If God had wanted the fluoride in the water, he would have put it there," "Water is God's handiwork and no one should fool with it," "Water is not a product of Man but of God, and Man can't improve on that."

The responses illustrated above may be considered the salient reasons for anti-fluoridation opinion; that is, within the interview situation, these are the reasons that come to the interviewee's mind without prompting. When, however, the anti-fluoridation respondent is faced with

a check list of statements drawn from the anti-fluoridation literature, the structure of his opinion takes on a different character. Thus, while few anti-fluoridation respondents gave more than one reason in the interview situation, no fewer than 34 of the respondents checked six or more of the statements in the structured questionnaire.

Offered the gamut of justifications for their stand, anti-fluoridationists will select numerous reasons to justify their attitude (Table 3). Although anti-fluoridationists agree with claims for detrimental health effects from the use of fluorides, they tend to condemn fluoridation on the grounds that it can be provided cheaper by drugs or individually administered in food, and that it constitutes mass medication. These tactics weaken their argument. Although we observed this process with the more vocal anti-fluoridationists interviewed during a preliminary pilot study, we did not expect the same result with anti-fluoridationists in the population at large.

Comparing responses to the open-ended question and the check list questionnaire, there emerged a somewhat different emphasis in the reasons given for justification of the anti-fluoridation stand. Most striking was the large number (80 per cent of the sample) who thought that the drug can be supplied at one-fifth of the cost by the use of tablets; yet only 20 per cent gave this reason in the interview situation. Together with the statement that "fluoridation dumps 99.9 per cent of the taxpayers' money down the sewer drain," (to which nearly 80 per cent of the anti-fluoridationists subscribed) these claims suggest at least implicit acceptance of the benefits of fluorides on teeth. This deduction gains some support from the

Table 3 Percentage of anti-fluoridation respondents agreeing with various statements about fluoridation.

Essence of statement	Percentage of agreement*
Specific detrimental effects	
Fluoride is poison	48
Causes mottling of teeth	47
Causes brittle bones	20
Harmful to sick and aged	45
Increases radio-activity in body	15
Corrodes pipes, therefore hurts human tissues	37
Makes water taste badly	32
Benefits do not last	21
Commercial	
Dumps 99.9% of taxpayer's money down drain	77
Can be provided at one-fifth the cost by tablets or drugs	81
Proposed by commercial interest for own profit	31
Proposed by dentists to increase business	16
Communism	
Communist plot to poison country	6
Personal	
Mass medication	79
Violation of religious principles	11
Other objections	
Impossible to control intake of fluorine	71
Disagreement among scientists	82

* N = 62; some respondents gave more than one reason.

fact that less than 50 per cent of the anti-fluoridationists took the opportunity to check those statements alluding to specific detrimental effects of fluoridation, and suggests that detrimental effects are secondary or supplementary to the primary objection on the grounds of mass medication.

It is important to remember here that we are concerned with the convinced anti-fluoridationist rather than with the person whose opinion is undecided or uncommitted but who votes against the issue at the plebiscite. The latter may make his decision to vote against fluoridation on the grounds that it is poisonous or otherwise detrimental to the public's health and welfare. But we suggest that, in general, the committed anti-fluoridationist's opinion is primarily a function not of exposure to the arguments of mass media, but of a basic orienting frame of reference into which issues of this nature can be fitted. Indeed, we further suggest that this frame of reference is not merely applicable to health measures but is, rather, an underlying style of life. For the older citizen this style of life is characterized as resistance to change, rejection of innovation and maintenance of the status quo. Thus, any measure for personal or political benefit will be resisted, though justification for this resistance may be expressed by recourse to propaganda propounded by the anti-fluoridationists. The same holds true for those holding a basic orientation that sees the world in "naturist" terms. The addition of fluoride to the water supply is, in itself, obnoxious to these individuals. But given the opportunity, as in the check list questionnaire, these individuals find reinforcement for their interpretation of the issue in the postulated detrimental effects.

Summary and Conclusion

This paper examines the nature of opinions on fluoridation of convinced pro-fluoridationists and anti-fluoridationists drawn at random from the City of Edmonton. The respondents were interviewed and asked why they took a particular stand and their replies were recorded. They were then asked to respond to a specially prepared list of statements reflecting both sides of the fluoridation issue. Pro-fluoridation opinion is generally based on acceptance of fluoridation as a preventive measure against dental caries. On the other hand, the anti-fluoridationist has multiple and varied rationales for his rejection of the issue, all of which he fits into a basic frame of reference that determines his initial response to the issue.

Résumé

Cet article analyse les motifs qui ont porté ceux qui se sont prononcé en faveur et ceux qui se sont déclaré contre la fluoration, dans la ville d'Edmonton, à voter comme ils l'ont fait. Les voteurs, au hasard, furent interviewés et on leur a demandé pourquoi ils s'étaient prononcé dans un sens ou dans l'autre; leurs réponses furent notées. Ensuite, on les a priés de répondre à une liste préparée à l'avance de déclarations pour ou contre la fluoration. Selon l'avis des personnes qui ont voté en faveur de la fluoration, elles désiraient cette mesure, d'une façon générale, surtout parce qu'elle prévenait la carie dentaire. Par ailleurs, ceux qui ont voté contre avaient une multitude de raisons qui pourraient se classifier dans un concept général motivant leur réaction: ce concept ne s'applique pas seulement aux mesures de santé, mais il constitue plutôt un mode de vie fondamental.

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75 Albert Street

FIGURE 1 Pre-operative profile (l.).

FIGURE 2 Pre-operative full face view (above).

case reports

Surgical treatment of microgenia with an autogenous iliac bone graft

A. A. Antoni, D.D.S., M.Sc.D., T. B. Van de Mark,† D.D.S., M.D., Simon Weinberg,† D.D.S. and Ian Schofield,‡ B.A., D.D.S., Toronto, Ontario*

Microgenia is a mandibular defect which can be easily confused with micrognathia. Microgenia is the name applied to the deficient development of the mental prominence. Thoma[1] makes mention of this condition in his new texts. Rowe[2] in an excellent comprehensive survey of defects of the human jaws deals with microgenia under the headings of congenital anomalies of organogenesis of differentiation.

Von Bergman was the first to try and correct a receding chin. His procedure involved extensive resection of the condyloid and coronoid processes with subsequent anterior displacement of the entire jaw by means of a dental apparatus (1904).

The addition of bone in surgical correction of a receding chin was reported by Limbey; he used a rib-graft and the step operation of Godd (1906).

Caldwell and Amorel described the iliac bone graft and decortication in 1954.

Case report

History and Examination. — A well nourished, normally developed white female, aged 16 years, attended the oral surgery

*Chief, Department of Oral Surgery,
†Associate oral surgeon,
‡Resident in oral surgery, The Doctors Hospital, Toronto.

department at the Doctors Hospital on August 19, 1963 because she felt sensitive about her markedly receding chin.

Her past medical history was not significant. She had had no serious illness or operation apart from the usual childhood diseases. She had no known relatives with this deformity.

Oral examination revealed normal soft tissue structures and evidence of good oral hygiene. Her teeth were in good repair, the supporting structures were well developed and her occlusion was excellent. She had been to an orthodontist four years previously for treatment of a crowded arch. Palpation of the bony structures revealed a normal mandible except for the complete lack of a mental prominence (Figures 1 and 2). The excursions of the mandible were within normal limits.

Radiographic examination revealed a well developed mandible in all respects except for complete lack of development in the mental region. There was normal development of the alveolar process.

Treatment. — We decided to admit this patient to hospital for transplantation of bone from the iliac crests as an onlay graft on the deficient mental prominence.

The results of medical examination and laboratory tests on this patient were normal. Her blood was crossed and typed for 2 units (1,000 ml.) of whole blood. Prophylactic intramuscular penicillin, 800,000 I.U. was administered twice daily.

On August 20, 1963, one hour pre-operatively, she received 75 mg. meperidine (Demerol) and 1/100 gr. atropine intramuscularly. The patient was given a general anaesthetic with naso-endotrachial intubation.

The surgical sites were prepared with benzalkonium tincture (Cetavalon) and cetyltrimethylammonium bromide detergent (Tincture of Zephiran). The patient was draped with sterile drapes and towels to permit visualization of the mental area and chin. George Hiraki, a general surgeon, obtained from the iliac crest the graft which measured 1 x 2½ inches.

FIGURE 3 Postoperative profile.

FIGURE 4 Postoperative full face view.

Simultaneously a two-inch incision was made below and parallel to the inferior border of the mandible in the region of the symphysis. The periosteum was reflected to expose the site of onlay. The exposed bone was partially decorticated. The graft decorticated on one side, was trimmed and seated. It was held in place by No. 26 gauge stainless steel wire which passed through bur holes penetrating the graft and mandible.

The two operative sites were closed in layers with 00 and 000 plain gut suture material. The skin was closed with 00000 black silk matress and interrupted sutures. A Penrose drain was inserted in the hip incision. Soft dry dressings were placed at each site and held to place with adhesive tape strips.

Haemostasis was good throughout the operation. The patient withstood the procedure well and returned to the recovery room in good condition.

Postoperative care included 800,000 I.U. slow reacting penicillin intramuscularly twice daily; one grain of codeine when required to relieve pain; 1½ gr. of sodium pentobarbital (Nembutal) when required at night; one 50mg. suppository of dimenhydrinate (Gravol) every six hours when required to relieve nausea; and five per cent dextrose in water given intravenously. The latter was continued until the patient could take 2,400 ml. by mouth in 24 hours. A soft (high caloric-high protein-high vitamin) diet was prescribed. The likelihood of postoperative bleeding was reduced by raising the head of the bed during periods of consciousness.

Postoperative Course. — The postoperative course was uneventful. The gauze dressing was removed on the second day. The incision site was kept clean.

This patient has been seen at monthly intervals following her discharge on August 28 (Figures 3 and 4).

Summary and conclusion

A report of surgical correction of microgenia is described.

An iliac bone graft was used because of the overwhelming evidence of the osteogenic power of this bone.[3-5] Large spaces within the cancellous iliac bone allow early rapid vascularization thereby permitting survival of many of the graft cells.[6] The autogenous bone graft causes no tissue reaction.[7]

The postoperative results substantiate our choice of treatment.

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25 Brunswick Avenue

Transactions of the Canadian Dental Association • The Association's *Transactions* contain reports of the activities of the various bureaux, councils and committees. Published in English and French after every meeting of the Board of Governors, it is recommended reading for all Canadian dentists.

Policy statement on dental prepayment plans

Dental Services Committee

For many years the Canadian Dental Association has maintained a continuing study of dental prepayment plans around the world. These studies provide the basis of this policy statement on dental prepayment plans for Canada.

The dental profession of Canada strives to provide the best possible dental care. The profession's goal is to raise the general level of dental health until ultimately all Canadians enjoy good dental health. The profession, through its national organization, the Canadian Dental Association, has recorded its readiness and willingness to co-operate with appropriate authorities in planning for better dental health for more Canadians.

Simply stated, Canada has too few dentists and too much dental disease. It is impractical now to offer a comprehensive dental care plan for the whole population. A program of treatment services for all people of all ages simply could not be carried out by the present number of dentists. Dental manpower would be overwhelmed if an attempt were made to cope, by means of treatment alone, with the great magnitude of Canada's present dental service requirements. Before a complete nation-wide dental care plan could be introduced, emphasis must be placed upon research into the causes and control of dental disease, upon means of preventing dental diseases and upon increasing the numbers of dentists and auxiliary workers.

The Canadian Dental Association encourages the establishment of dental prepayment plans for groups of people. These plans hold promise of making better dental health a practical reality for their subscribers and, at the same time, at a known cost.

There are two main types of dental plans and various combinations of the two:

(a) One is the indemnity type, which reimburses the patient for the cost of dental care but does not provide dental care itself. The patient bears the responsibility for knowing what services are covered by the plan and for payment of the dentist's fee.

(b) The other type of plan is the dental service plan under which dentists contract to provide specified dental services according to an established schedule of fees. Dental service plans should be administered by provincial non-profit, profession-sponsored dental service corporations whose boards of directors represent the public and the profession.

Adopted at the Annual Meeting of the Canadian Dental Association, June 24-July 1, 1964. This statement replaces all previous Association statements on this subject.

The first objective of a dental prepayment plan should be good dental health. This can be accomplished by a positive program of preventive care by dentists, intensive dental health education of children and their parents and, at the community level, institution of sound public health measures such as fluoridation.

The Canadian Dental Association believes that observance of the following principles will result in better dental prepayment plans and thus in better dental health of the people served by them.

1. Organizations representing the dental profession should be consulted to help design the plan, well in advance of starting a plan or introducing legislation for one.

2. Treatment should be provided by dentists in private practice.

3. Specialist services should be included if the patient is referred to a specialist by a general dental practitioner.

4. The right of patients to choose their dentists and conversely the right of dentists to select patients should be assured.

5. Dentists should be free to exercise their professional judgement and perform covered services without prior authorization of the administrative arm of the plan.

6. The discipline of dentists must continue to be the responsibility of the licensing bodies within the profession.

7. The basis of payment for dental services should be the dentist's usual fees or the schedule of fees established by the appropriate provincial dental organization.

8. All ethically and legally qualified dentists should be eligible to participate in the plan should they choose to do so.

There are several other factors worthy of consideration in developing dental prepayment plans:

Intensive dental health education should precede and accompany the treatment program.

The age groups to be covered by the treatment program should be determined by initial and periodic assessment of the needs of the people who are to be included in the plan, and of the available funds and dental personnel. Ideally the plan should begin by including all children from three to, if possible, six years of age and should extend, annually if possible, to children one year older. By adding another age level each year, it is possible eventually to develop a whole generation of Canadians with healthy mouths and the knowledge to keep them that way.

Direct annual surveys of the dental health of the people covered by the plan should be conducted to determine the direction and development of the plan. The success of a dental treatment program cannot be established simply by the tabulation of the number of operations performed out of an unknown backlog of treatment needs.

Because it is virtually impossible for any plan to include all the services which dentists can provide, priorities should be established. Top priority should be given to preventive and restorative services. The dental organization assisting in designing the plan can give advice as to the priority of specific services.

Dental Personnel in Canada • In January 1964, 6,103 dentists were registered in Canada. —C.D.A. Bureau of Economic Research.

Déclaration de politique au sujet des plans dentaires pré-payés

Comité des services dentaires

L'Association dentaire canadienne, depuis plusieurs années, observe sans cesse dans le monde entier le fonctionnement des plans dentaires pré-payés. Ces études lui ont permis de formuler la politique que voici au sujet des plans dentaires pré-payés au Canada.

La profession dentaire du Canada s'efforce de prodiguer les meilleurs traitements possibles; elle se fixe comme but général d'élever le niveau de la santé dentaire jusqu'à ce que tous les Canadiens jouissent d'une bonne santé dentaire. La profession, par le truchement de son organisme national, l'Association dentaire canadienne, a déjà témoigné son désir et sa bonne volonté de collaborer avec les autorités compétentes pour améliorer la santé dentaire des Canadiens.

On peut dire tout simplement: le Canada a peu de dentistes et beaucoup de maladies dentaires. Il ne serait pas à propos d'établir maintenant un système général d'assurance-santé dentaire pour toute la population. Un tel système de services pour tous, à tous les âges, est voué à un échec à cause du nombre restreint de dentistes dans notre pays. Les effectifs dentaires actuels seraient tout simplement submergés, si on tentait, seulement à l'aide des traitements, de répondre aux besoins immenses qui existent pour des traitements dentaires. Avant de songer à mettre en vigueur, à l'intention de toute la population, un plan complet de traitements, il faut stimuler les recherches sur les causes et le contrôle des maladies dentaires, sur les façons de les prévenir et sur des méthodes pour augmenter le nombre des dentistes et de leurs auxiliaires.

L'Association dentaire canadienne encourage l'établissement de plans dentaires pré-payés s'adressant à des groupes de personnes. Ces plans permettent sans aucun doute à leurs souscripteurs de jouir — en pratique et à un taux connu — des bienfaits d'une bonne santé dentaire.

Il y a deux grands types de plans dentaires et une variété faits de la combinaison des deux:

(a) Le premier est du genre indemnité. Ce plan rembourse le patient pour les honoraires qu'il a dû payer. Mais ce plan de ne soucie pas de prodiguer les soins. Le patient a la responsabilité de connaître les traitements pour lesquels il est assuré et de payer les honoraires du dentiste.

Adoptée à la réunion annuelle de l'Association dentaire canadienne, qui a eu lieu du 24 juin au 1er juillet. Cette déclaration remplace toutes les autres déclarations faites auparavant sur le sujet.

(b) L'autre genre de plan est le plan des services dentaires par lequel des dentistes s'engagent à prodiguer certains services selon une échelle fixe d'honoraires. Les plans de services devraient être administrés sans but lucratif par des corporations provinciales mises sur pied par la profession dentaire et dont le conseil des directeurs grouperait des représentants des dentistes et du public.

Le premier objectif d'un plan dentaire pré-payé devrait être une bonne santé dentaire. On atteint ce but grâce à un programme positif de prévention dirigé par des dentistes, grâce à une campagne soutenue d'éducation chez les enfants et leurs parents et — au niveau collectif — grâce à la mise en œuvre de mesures d'hygiène publique, telle que la fluoration.

L'Association dentaire canadienne croit que l'adhésion aux principes suivants créent de meilleurs plans dentaires prépayés et aussi une meilleure santé dentaire chez les individus desservis par ces plans.

1. Bien avant de lancer un plan ou de rédiger un projet de loi pour ce faire, il faudrait consulter des délégués officiels de la profession dentaire pour qu'ils puissent aider à l'élaboration du plan.

2. Les traitements devraient être prodigués par des dentistes dans un cabinet privé.

3. Le plan devrait couvrir les services de spécialistes, si le patient est référé par un omnipraticien à un spécialiste.

4. Le patient devrait pouvoir choisir son dentiste et le dentiste choisir ses patients.

5. Les dentistes doivent être libres d'exercer leur jugement professionnel et de prodiguer les services qu'ils jugent à propos, sans au préalable avoir à se faire autoriser par ceux qui administrent le plan.

6. L'organisme légal de la profession doit garder sa responsabilité vis-à-vis la discipline de ses membres.

7. La base des paiements pour les services dentaires doit s'établir sur les honoraires ordinaires du dentiste ou sur une échelle d'honoraires fixée par l'organisme dentaire provincial concerné.

8. Tout dentiste légalement et éthiquement qualifié peut, s'il le désire, être éligible pour participer au plan.

Il y a d'autres facteurs qui interviennent dans l'établissement de plans dentaires pré-payés.

Une campagne intensive d'éducation en hygiène dentaire doit précéder et accompagner tout programme de traitements.

La disponibilité des fonds et le nombre de dentistes participants ainsi qu'un relevé fait au début et répété périodiquement sur les besoins des personnes qui feront partie du plan détermineront les groupes d'âge qui pourront être compris dans le plan. Le plan, d'une façon idéale, devrait d'abord couvrir tous les enfants de trois à — si possible — six ans et admettre, chaque année les enfants plus âgés d'un an. Il sera ainsi possible, avec le temps, en ajoutant un autre groupe d'âge, chaque année, d'obtenir une génération complète de Canadiens qui auront des dents saines et qui les garderont dans cet état.

On devrait entreprendre, tous les ans, des relevés sur la santé dentaire des personnes protégées par le plan pour en assurer le progrès, tout en le modifiant selon les circonstances. Un tel plan ne peut pas bien fonctionner si on se contente de compiler les traitements qui ont été prodigués, sans connaître les besoins pour des traitements qui se sont accumulés au cours des années.

Il faudrait établir des priorités pour les traitements, car il est virtuellement impossible qu'un plan couvre tous les services qu'un dentiste peut donner. Il faudrait mettre en tête de liste les services de prévention et de restauration. L'organisme dentaire qui est consulté pour l'élaboration du plan peut donner des conseils judicieux au sujet de la priorité des services spécifiques.

Dalhousie's dental faculty looks to the future

Canada's Atlantic Provinces need more dentists and Dalhousie University in Halifax is preparing to meet this need.

How many practitioners will Newfoundland, Nova Scotia, New Brunswick and Prince Edward Island require 20 years from now? How many dentists will have to be trained from now until 1983 to meet those needs? What physical facilities are necessary to produce enough dentists for the region by then? The answers to these questions emerge from an illuminating little brochure recently prepared by Dalhousie's Faculty of Dentistry.[1] This report describes the present population and the currently registered dentists of the region. It points to anticipated population trends and estimates the number of dentists required to match these trends and compensate for normal replacement of a proportion of present practitioners. The report concludes with a description of the present output of dental graduates by Dalhousie University and the expansion necessitated by demographic requirements.

In 1963 almost two million Canadians lived in Canada's four eastern provinces. According to the Dalhousie report these people were served by 427 dentists. By 1983 the population of this area is expected to exceed two and a half million. To attain the current national ratio of one dentist for every 3,000 Canadians, a population of this size will require 845 dentists. To attain a more favourable ratio of 1:2,400 the Atlantic region will require 1,055 dentists by 1983. These targets represent respective increments of 418 or 628 dentists over the present 427 registered practitioners. An additional 213 dentists will be required if, as the report assumes, half of the present 427 dentists are to be replaced by 1983 for reasons of death, retirement or removal. Thus, by 1983, the Atlantic Provinces will require 631 or 831 additional dentists to attain dentist: population ratios of 1:3,000 or 1:2,400.

Dalhousie University currently produces about 15 dentists annually. To obtain 631 additional dentists by 1983 will necessitate graduating 32 additional students each year. To obtain 831 additional dentists by 1983 will necessitate graduating 42 additional students each year. These figures are subject to further adjustment in order to compensate for small losses of students during the undergraduate curriculum, for graduates who eventually leave the region, and for a reasonable proportion of students to be accepted from outside the Atlantic Provinces. Accordingly, almost 46 first-year students will be required to meet a ratio of 1:3,000, and 64 first-year students will be required to meet a ratio of 1:2,400 by 1983.

The Dalhousie report acknowledges that other circumstances may influence these requirements. For instance, changes in the national or regional economy, possible introduction of a national health plan with any form of dental care, or the desirability of obtaining the improved ratios more quickly — all these factors could have an impact. There are also the effects of patient education, of more readily available dental service, and the increasing number of practitioners who will be involved in activities other than pri-

vate practice or direct service to the public. Moreover, some practitioners, notably in New Brunswick, are and will continue to be graduates of French language universities. Nevertheless, Dalhousie University now provides an increasing proportion of the new practitioners for the entire region and will likely remain the source of most of its dentists simply because of increasing regional pressures on other dental schools. Consequently, the authors of the report consider that their projections are realistic, if not somewhat conservative.

The attainment of their objectives by 1983 depends, of course, on an adequate supply of suitable students. On that score, there seem to be grounds for optimism. Various projections of present student enrolment trends suggest that Dalhousie University can count on the required number of qualified applicants. By 1970 the Atlantic Provinces are expected to supply approximately 60 qualified applicants. Some of these will be denied entry even if the school's capacity is increased to 60 by then because it will still be desirable to admit up to ten per cent of the entrants from other provinces and countries. In fact, 37 qualified Atlantic Provinces applicants will be refused admission in 1970 if the dental school remains at its present size. And even if applicants were limited to Nova Scotia, approximately seven would be excluded in that year.

The report therefore urges that immediate steps be taken to provide accommodation by 1970 for entering classes of 60 to 64. It calls for simultaneous consideration of the needs for graduate and postgraduate education and training facilities for auxiliary personnel.

The authors of the Dalhousie report have demonstrated wisdom in predicting the trend of events and imagination in proposing bold measures to meet future needs. May their efforts be crowned with success.

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Impact of social services on Canada's economy

By 1971, the Royal Commission on Health Services estimates that its proposed comprehensive health program could add another $466 million to the $4 billion that Canadians are expected to spend anyway for health services that year. Increased amounts of revenues will have to be raised by governments and citizens will have to pay more in taxes or premiums to support this program. Apparently, that is no problem because, as the commissioners assert, ". . . Canada has the resources — let there be no mistake about that — to implement a comprehensive health services program for all her peoples." But the vital question of whether we can simultaneously afford the projected requirements in education, in pensions and in health planning without impairing the overall economy remains unanswered. Here is what Toronto's *Globe and Mail* had to say on the subject in an editorial entitled "Needs and resources,"[1] published on July 23:

"The case for a searching study to relate Canada's social needs to economic resources before the federal government launches into the Canada Pension Plan grows stronger week by week. Senator Wallace McCutcheon, a distinguished financial expert and minister in the former Conservative government, reinforced the argument with a persuasive speech in Toronto on Saturday.

"As Premier Duff Roblin of Manitoba pointed out in a recent letter to Ottawa, the country is now engaged in the rapid development of education at all levels. This is already costing vast sums of money, and expenditure may be expected to rise for as far into the future as we can see.

"Next we have the Canada Pension Plan which the federal government is proposing to lay before parliament very shortly. This will be, when implemented, the largest social security program ever undertaken in Canada. At the instigation of Premier Jean Lesage of Quebec and Premier John Robarts of Ontario, it was designed in its latest form, not only to pay pensions, but also to accumulate huge reserve funds which will be avail-

able for the investment purposes of the provincial governments.

"Senator McCutcheon estimated in his speech that these funds would build up to $8 billion in eight years. That means that the plan would collect over the period at least $7 billion more than would be required to finance pensions on a pay-as-you-go basis. For the average family man, said Senator McCutcheon, the scheme would mean an increase of 1.5 per cent in income tax; for some businesses with large labour costs, it would mean a five per cent increase in corporation tax.

"Finally, there is the comprehensive medical insurance scheme recommended recently by the Hall Royal Commission. The federal government, it is true, has not committed itself to the commission's proposals, but it has pledged itself to introduce some form of medicare and it will be under great pressure to go all the way with the Hall Report. What such an all-embracing scheme would cost it is not yet clear; only experience would tell the whole story. But it is certain that it would demand considerable increase in the current level of expenditure on medical services.

"Education, pensions, medicare — all are desirable, all appeal to the politicians as useful bait with which to hook votes. But can we afford all three at once, or in rapid succession? Have we the economic resources to meet these needs, or is there a danger that we may overstrain the economy and so destroy our real social welfare?

"Senator McCutcheon clearly thinks there is such a danger. So do many other responsible people. It is pointed out that the proportion of our net national income devoted to government social welfare expenditures has risen from 8.1 per cent in 1949-50 to 12.8 per cent in 1961-62 — an increase of 58 per cent. We are now spending a higher proportion of our income on welfare than the United States or Britain. If pensions and medicare are added to the bill, we could find ourselves at a serious competitive disadvantage in trading with countries in which welfare costs and taxes are lower.

"That is one side of the picture. The other side is that expenditure on welfare, while expensive in dollar terms, may yield handsome profits in stimulation of the economy and in the improvement of our most valuable resources — people. Some of the countries of Europe which have most elaborate social security plans, and in which a very high proportion of national income goes to government, can also boast of extremely productive economies.

"The problem for Canada is to strike a balance, to determine how much we can afford to spend on social services without damaging the economy, and which services are most needed and should be treated as priority. We need a careful study to answer these questions. We cannot afford to blunder into providing services just because they promise to be politically popular in the long run.

"The pressure for such a study is mounting, and it is difficult to see how the government can resist it except on the grounds of partisan expediency."

REFERENCE

1. The Globe and Mail. Needs and resources. July 23, 1964. (Editorial). Reprinted by permission.

One in every fifty

It is not generally realized that diabetes is one of the most common diseases in Canada. Approximately one in every 50 Canadians is a diabetic, according to The Canadian Diabetic Association. Every two hours another Canadian becomes a diabetic and the disease ranks seventh as a cause of death in this country.

There are four groups of people in which diabetes occurs more frequently than others: people with diabetic relatives; people over 40; women, more often than men; and people who are overweight.

Only a few years ago there was very little hope for diabetics. Then came the great discovery of insulin at the University of Toronto. Next came the oral antidiabetic drugs that freed many diabetics from the discomfort of daily injections. Many of today's diabetics have found that restriction of certain foods and moderate exercise may be adequate.

The Canadian Diabetic Association urges Canadians to undergo tests for the detection of diabetes. Dentists can lend their support. Every Canadian owes it to himself and his family to see that a test for diabetes is undertaken at regular intervals.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

Canadian Council for Dental Information

To the Editor:

Having compared the news item concerning the Canadian Council for Dental Information which was published in the July issue of the Journal with the notice which we mailed you, it cannot be said by any means to contain the same factual information. Therefore, in the interests of clarity and for the benefit of your readers it would be appreciated if you would print the notice in your next issue.

Jocelyn Zuck, D.D.S.,
Corresponding Secretary, C.C.D.I.,
1876 Weston Road, Weston, Ontario.

Herewith the full text of Dr. Zuck's notice of July 4: "A new organization, the Canadian Council for Dental Information, was recently formed. The aims of the council are the discussion and dissemination of information on socio-economic and political subjects pertaining to dentistry. The council is not intended to parallel or supersede any existing dental organization. At a meeting in Toronto on June 22, 1964, the members of the C.C.D.I. ratified the council's constitution. The executive officers are: Donald Clee, president; Elliott Siegel, past president; George Kelly and Reg. Morningstar, vice-presidents; Ray Shunock, treasurer; Jocelyn Zuck, corresponding secretary; and Ray Mulrooney, recording secretary. Chairmen of committees are: Ronald Kellen, membership; and Ralph Singer, publication and research. Applications for membership, open to any licensed dentist, can be addressed to any of the executive offices." *(Ed.)*

Dislikes Integrated Journal

To the Editor:

To state that 'alarm' was registered in my being upon receipt of the last issue of the Journal, would be using the mildest term I can muster at the moment. Surely you realize, without my saying so, that I refer to the unnecessary confusion, tactless and blatant effrontery, to the mass of Canadian dentists, that you have perpetrated by replacing the logical English area with another language.

I do not ask sir, I state, the majority should have and must have some rights in this country. Whether it be Halifax, Toronto, Winnipeg, Regina, Edmonton or Vancouver, another language, other than French, dominates the scene next to English.

In my mind we dentists do not need to follow the politicians whose slogan might well be "have tails, will grovel."

Please digest what I may say, because I am not alone in my thinking.

There are those (of you) who would have us believe that Canada is a bilingual nation. We are not. It was not the intention of the authors of the B.N.A. Act to make French a second language of Canada, and thereby enable us, as a nation, to be divided in the most forthright way possible.

Section 133 of the B.N.A. Act clearly states that French is an official language of Canada for only the purpose of debates in parliament, the legislature of Quebec, the official records of these governments, proceedings in the Supreme Court of Canada, Quebec provincial courts and the Exchequer Court of Canada. Period!

Clearly, the French language does not have any official or legal status in any other area of Canada. The important fact, rarely mentioned, is that Section 133 was not intended to enshrine the French language for all Canada but, conversely, to ensure that the English language would be an official language in a predominantly French speaking province.

It is my considered opinion that you have been led astray very badly and, that you have created more harm than you can hope to repair. Mind you, I am only one of the creatures described so recently by a Liberal cabinet minister when he stated that "Western Canada is a melting pot of second-class citizens who came here only because they could not get into the United States." Too often our C.D.A. office exemplifies this very same attitude.

A. H. Lane, D.D.S.,
303 Medical Dental Building,
Edmonton, Alberta.

Dr. Lane expresses views that some others may share. But the resolution of the Board of Governors which gives effect to integration of English and French editorial matter in the Journal recognizes what other multilingual publications have known for a long time: that rigid language separation is costly. Through its resolution the Board, moreover, wished to bring important information to the attention of dentists of the two major language groups in an effective yet economical manner. Publication in the opening pages of the August Journal of a hospital dentistry symposium in French (with English summaries) reflects an effort to bring pertinent information before as many readers as possible. This implies no disrespect toward any person or groups of persons. *(Ed.)*

library • bibliothèque

Additions • Acquisitions

BENNETT, D. T. Traumatised anterior teeth. London, British Dental Association, 1964. 26 p. illus. 3s6d.

BERLINER, A. Ligatures, splints, bite planes and pyramids; adjuncts in the treatment of periodontal disease. Montreal, Lippincott, 1964. 180 p. illus. $13.00.

BRAUER, J. C. Dentistry for children. 5th ed. Toronto, McGraw-Hill, 1964. 612 p. illus. $14.65.

BURROWS, W. Textbook of microbiology. 18th ed. Philadelphia, Saunders, 1963. 1155 p. illus. $18.40.

DENTAL CLINICS OF NORTH AMERICA, July 1964. Symposia on I. Office oral surgery. II. Orthodontics for the general practitioner. Philadelphia, Saunders, 1964. Pages 271-413-5555. illus.

EASTWOOD, D. W. Clinical anesthesia: nitrousoxide. Philadelphia, F. A. Davis, 1964. 156 p. illus. $6.00.

ELFENBAUM, A. Diagnostic procedure in the dental office. (Practical Dental Monographs, July 1964.) 38 p. illus.

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GROSSMAN, L. I. ed. Transactions of the Third International Conference on Endodontics. Philadelphia, University of Pennsylvania, 1963. 248 p. illus. $5.00.

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HAMPSON, E. L. Textbook of operative dentistry. 2nd ed. London, William Heinemann Med. Books Ltd., 1964. 329 p. illus. $10.50.

HARRIS, S. E. The economics of American medicine. New York, The Macmillan Co., 1964. 508 p. $9.80.

McCARTHY, P. L. and SHKLAR, G. Diseases of the oral mucosa. Toronto, McGraw-Hill, 1964. 372 p. illus. $17.35.

McCRACKEN, W. L. Partial denture construction; principles and techniques. Ed. 2. St. Louis, Mosby, 1964. 530 p. illus. $15.15

VALLEE, A. Michel Sarrazin; un biologiste canadien, 1659-1935. Sa vie, ses travaux et sons temps. 1927. 291 p.

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dentistry in the news

The Association

McINTOSH STARTS AT HEADQUARTERS

Secretary designate W. G. McIntosh has taken up his new duties at C.D.A. Headquarters in Toronto. Dr. McIntosh, whose appointment was announced by former president James Zimmerman in February of this year, began to work at Headquarters on September 1. He will succeed Don W. Gullett as secretary of the Association when the latter retires on December 31.

Formerly an associate professor of periodontics at Toronto's Faculty of Dentistry, Dr. McIntosh is a past president of the Canadian Dental Association and has served as chairman of the Council on Research and the Dental Services Committee.

MISS LaMARSH REPLIES TO REQUEST FOR DENTAL GRANT

As directed by the Board of Governors, Secretary Don W. Gullett on July 30 wrote to the Minister of National Health and Welfare acquainting her with the resolution requesting the establishment of a dental health grant which was adopted at the last annual meeting of the Board. In her reply, dated August 12, Health Minister Judy LaMarsh acknowledged the dental profession's concern for the health of the people of Canada. The report of the Hall Commission, she pointed out, deals specifically with the provision of comprehensive dental services, and "the finding and recommendations of this Report are now being reviewed by the department and in the course of this careful review, the whole matter of dental health needs in Canada will receive the fullest consideration."

International Items

AMERICAN DENTAL ASSOCIATION 'RECOGNIZES' TWO ELECTRIC TOOTHBRUSHES

The American Dental Association has given recognition to two electric toothbrushes—manufactured by General Electric Company and E. R. Squibb and Sons —as "effective cleansing devices." This is the first time that such recognition has been given to any electric toothbrush.

A statement issued on September 1 by the A.D.A. Council on Dental Therapeutics reports that the General Electric toothbrush has been accepted "as an effective cleansing device for use as part of a program of good oral hygiene to supplement the regular professional care required for oral health." This toothbrush has been classified under group A products which are listed in *Accepted Dental Remedies,* published annually by the council.

Broxodent (Squibb) toothbrush has also been "provisionally accepted as an effective cleansing device for use as part of a program of good oral hygiene to supplement the regular professional care required for oral health." This toothbrush has been classified under group B products which, because of their relative new-

ness, lack sufficient evidence for regular listing in *Accepted Dental Remedies,* but for which there is good evidence of usefulness and safety. The distinction between group A and group B products is related to time and available evidence and not to quality or effectiveness.

The council emphasized that currently available clinical proof showed that the two classified brushes had proven cleansing ability, but that there was not yet sufficient evidence for therapeutic claims by any brush.

The Canadian Dental Association does not engage in product classification or recognition.

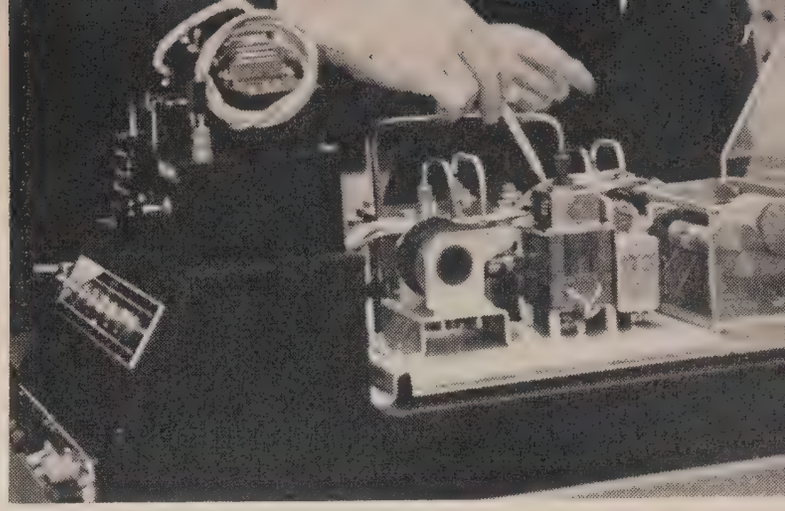
U.S. CLEFT PALATE RESEARCH PROJECT STARTS

The largest clinical research centre in the United States for the study of cleft lip and palate will be established at the Lancaster Cleft Palate Clinic, Lancaster, Pennsylvania, under a grant from the U. S. National Institute of Dental Health.

H. K. Cooper, founder and director of the Lancaster Clinic and a pioneer in rehabilitation of cleft palate patients, will conduct the comprehensive research program under this grant, studying the oral birth defect from its origin to its treatment. Dr. Cooper will head a scientific team which will probe factors that may cause cleft palate and cleft lip, evaluate various surgical and dental procedures to correct the deformity and habilitate speech, and test the psychological effects on patients and their families.

The skills of physicians, dentists, psychologists, social workers, speech therapists and many others will be adapted to the treatment of the cleft palate patient in the Lancaster research environment. The team approach, including the basic scientific fields of biochemistry and biology, is the highlight of the study.

Many surgical repair techniques now in use will be compared, and children will be followed closely for a number of years after operation to gauge the varying success of the procedures.



This experimental, portable and automated film darkroom chamber has been developed by Philco Corporation for use by military dental officers and dentists providing dental care in remote centres. The chamber develops and dries exposed dental x-ray film so that it may be viewed in only two minutes' time. The developing process requires only small amounts of developer fluid. When fully engineered, the chamber is expected to be about half the size of a standard typewriter. The manufacturer suggests it "would be an ideal companion for any one of several commercially available small, light-weight and battery-powered x-ray cameras.'

The Lancaster Clinic has extensive modern equipment for the diagnosis and treatment of cleft lip and cleft palate. Complex measurements, using x-ray sound motion pictures, are taken of each patient so that development and difficulties can be studied. What happens to the tongue and other mouth and throat structures during the processes of swallowing, crying and sucking can be watched in this way.

Studies of home and school environment, basic personality adjustments and extensive family studies will help to determine patterns of successful adaptation.

Dental Organizations

B.C. ASSOCIATION STRESSES PUBLIC RELATIONS

The British Columbia Dental Association probably spends more money on public relations than any other provincial dental organization. A portion of the annual licence fee is set aside for this purpose. Part of this fund is used to pay the salary of a professional counsellor and to defray the cost of printing the *B.C.D.A. News Bulletin.*

Recently, the programs of past years were reviewed and a new program estab-

lished for this year. Malvin Panar of New Westminster, newly appointed chairman of the public relations committee, reports that a Vancouver radio commentator, who conducts a public-participation program, was taken to Kelowna where he saw fluoridation equipment in use. Safety factors and controls employed showed the process to be absolutely safe. Monthly seminars have been started where established and experienced practitioners instruct recent graduates in the handling of patients. Another mouth protector program for high school athletes is in preparation, and a dental exhibit on the theme 'Prevention of dental caries by the use of fluorides' was recently presented at Vancouver's Pacific National Exhibition.

QUEBEC COLLEGE CONVICTS 85 FOR ILLEGAL PRACTICE

Suppression of illegal practice during the 12-month period of July 1, 1963 to July 1, 1964, resulted in 85 convictions against persons found guilty of practising dentistry illegally in the province of Quebec. The total amount levied in fines was $23,-250. Most of the convictions were secured against individuals in Montreal, but there were four convictions each against individuals in Chicoutimi, Alma and Roberval, while Nicolet and Quebec City registered two convictions each.

Royal Canadian Dental Corps

UNDERGRADUATES COMPLETE SUMMER TRAINING

Undergraduate officers and officer cadets of the third practical phase terminated their summer training with a passing-out parade on August 6 at Camp Borden, Ontario. The parade was held at the Royal Canadian Dental Corps School where the undergraduates complete the second and third phase of practical training as subsidized dental students. Brigadier K. M. Baird, Director General of Dental Services for the Canadian Forces, took the salute during the march-past.

Brigadier Baird later attended a mess dinner given in honour of these future dental officers of the R.C.D.C. on their departure to their various universities to resume academic training.

Awards presented for proficiency in practical phase training this year were as follows:

First Phase Honour Cadet—at the Royal Canadian School of Infantry—was Officer Cadet T. J. Erskine, University of Alberta;

Second Phase Honour Cadet—at the R.C.D.C. School—was Officer Cadet J. E. Stansfield, University of Toronto; runners-up for second phase were Officer Cadet W. Budzinski, University of Manitoba, and Officer Cadet H. M. Amos, Dalhousie University;

Third Phase Honour Cadet was Second Lieutenant R. F. Cooper, Dalhousie University; runner-up for third phase was Second Lieutenant A. F. Brothers, Dalhousie University;

The Chief Instructor's Trophy for Third Phase was awarded to Second Lieutenant G. S. Zwicker, Dalhousie University.

UNDERGRADUATES COMPETE IN CAMP BORDEN SWIMMING, TRACK AND FIELD EVENTS

Officer Cadet J. W. Bergerman, University of Manitoba, recently won the high individual aggregate for field events by placing first in the Discus Throw with a new record, placing second in the Hammer Throw as well as the Shot-put. He and fellow Officer Cadet H. A. Pankratz, University of Manitoba, were members of the Royal Canadian School of Infantry Track Team which compiled the highest total points of the meet. Second Lieutenant J. P. D. C. Grise, Université de Montréal, established a new record in the Javelin Throw.

Second Lieutenant Z. Tukums, University of Toronto, was second in the free-style swimming events. Officer Cadet I.

C. Wambera, University of Toronto, was second in the breaststroke. Officer Cadet F. H. Harreman, University of Alberta, was third in the backstroke. The swim relay team of Officer Cadets Tukums, Wambera, Harreman and Kipp (R.C.A.-M.C.) placed second.

OFFICERS ATTEND COURSES IN P.H. ORTHODONTICS, PERIODONTICS AND SURGERY

Maj. H. P. Guevremont, who was previously stationed at R.C.A.F. Station, St-Jean, P.Qué., is attending a postgraduate course in public health dentistry at the School of Hygiene and Faculty of Dentistry, University of Toronto.

Maj. J. H. Marion, now serving at No. 35 Field Dental Unit, R.C.D.C., No. 1 R.C.A.F. Air Division, Metz, France, will take the first two semesters of the orthodontic course at the University of Freiburg, Republic of West Germany. Maj. Marion is expected to start training early November.

Maj. T. D. Cobb, Camp Gagetown, and Maj. J. J. Y. Turcotte, Ottawa, were selected to attend a seven week and a one week course, respectively, in periodontics at the United States Naval Dental School, Bethesda, Maryland. Maj. J. F. Eadon, with the Canadian Brigade in Europe, and Maj. G. T. Crossman, Greenwood, Nova Scotia, are to attend the Royal College of Surgeons, London, England for an eight week course in general oral and dental surgery.

Economics

HEALTH COMMISSION'S APPROACH TO VOLUNTARY INSURANCE CONDEMNED

The Royal Commission on Health Services has been assailed for concluding that voluntary insurance is unable to provide universal comprehensive health coverage for Canadians. In the August *Mercer Actuarial Bulletin,* the actuarial firm of William M. Mercer sharply criticizes the Commission for its "general lack of understanding of the Alberta [Medical Services] plan" and for basing its own conclusions on statistics that are "heterogeneous both in regard to substance and time."

". . . We are critical of the fact that certain very strong conclusions have been reached in the [Commission's] Report on the basis of statistics which bear further investigation." Many of the statistics used in the Commission's Report were obtained from special studies still to be published. But, concludes the *Mercer Actuarial Bulletin,* "One cannot help asking how many other conclusions in the Report have been based on statistics which might also bear closer scrutiny."

Comparable criticism has been expressed by Trans-Canada Medical Plans, a national organization whose members are the various physician-sponsored medical service plans.

DENTAL CARE COSTS INCREASE LESS THAN OTHER HEALTH COSTS

Expenditures on dentists' services increased over the period 1926-1961 from $19 million to $119 million, according to the Royal Commission on Health Services. Expenditures on dental services fell by about 50 per cent during the depression but regained their previous peak level by 1943.

In 1926, dentists' services accounted for 12 per cent of the consumer dollar spent on health services. By 1954, the dental share had contracted to 8.4 per cent. Personal expenditures on dental services fell further to 7.4 per cent of the consumer dollar by 1961.

Per capita consumption of dental services apparently increased from $2.06 in 1926 to $6.51 in 1961. After the war, per capita consumption of dental services rose about 2.2 per cent each year. However, consumption of prescribed drugs, physicians' and hospital services increased at a greater rate.

Prices of dentists' services fell by about 2.1 per cent in the period 1926-1944. Since the war, these prices have increased at a trend rate of 3.9 per cent a year, but prices of dentists' services have not increased as rapidly in the immediate postwar years as hospital or physicians' services.

The Royal Commission notes that the volume of dental services has increased less than either medical or hospital services. "This is primarily due to the failure of the supply of dentists to keep up with the population growth, which in turn was the consequence of the slow rate of increase in the output of Canadian dental schools and a very low rate of immigration of dentists into Canada. As an offset, productivity of individual dentists has been rising as practitioners use larger amounts of capital equipment, new material, and new techniques. Further, the skills of dental assistants, dental technicians and other personnel have enabled dentists to increase their productivity even though the practice of dentistry is primarily an office practice."

DENTAL LABORATORY ACCREDITATION UNDER WAY IN U.S.

A nation-wide accreditation program for dental laboratories, administered by the Joint Commission on Accreditation of Dental Laboratories (JCADL) has been launched in the United States. Sponsors of JCADL are the American Dental Association and the National Association of Dental Laboratories. The purpose of the program is (1) to identify dental laboratories whose standards of service meet established requirements, (2) to encourage dental laboratories to improve the quality and efficiency of their services to the profession, and (3) to encourage total legal operation by the dental laboratory craft.

In this country, the Canadian Dental Association supports similar objectives through (1) the promotion of formal training courses for dental laboratory technicians in vocational institutions, (2) the procurement of legislation permitting licensure or registration of dental laboratory technicians, provided such legislation does not jeopardize the dental profession's right to render dental health care to the public, and (3) measures designed to improve the educational and economic base of the dental laboratory technician and the dental laboratory craft.

STUDY REVEALS DENTAL CARE MOTIVATION FACTORS

People who think that dental fees are fair get dental care "at a substantially higher level" than those who think that dental fees are high. This was revealed by a recent study of family expenditures on dental care in New York State. Elapsed time between dental visits was greater for people who considered dental fees as high, compared to their peers who thought fees were fair. Thus attitude, rather than rural or urban residence, seemed to be the deciding factor in determining the frequency of dental visits. Attitude to fees emerged as a powerful regulator of utilization and may constitute an index of the group of individuals most likely to be loaded down with accumulated needs.

GROUP DENTAL INSURANCE STARTED FOR U.S. DENTAL TRADE

A comprehensive group dental insurance plan for members of the American Dental Trade Association (ADTA) began on October 1. It is the first such plan offered by a national industry trade association for employees of its members. The plan is underwritten by the Continental Casualty Company of Chicago.

ADTA is comprised of dealers and manufacturers providing dental supplies and equipment to the dental profession and the dental laboratory industry in the United States. Many Canadian dealers and manufacturers are grouped as the Canadian section of ADTA.

The plan follows the major-medical insurance approach whereby after satisfying

a small deductible, except in the case of routine oral examination, benefits are paid for almost every type of dental service. Designed without fee schedules and providing for dentists' "usual and customary charges," the plan pays up to a standard maximum per policy year. Member-companies of ADTA are provided with options so that they can tailor a plan to best suit their individual needs.

JOINT LABOUR-PROFESSION STATEMENT ON PREPAYMENT IN U.S.

A joint statement setting up guidelines for development of dental prepayment plans for American Federation of Labour-Congress of Industrial Organizations affiliated unions was issued on August 5 by the AFL-CIO and the American Dental Association.

Following is the complete text of "Principles for dental prepayment programs — joint statement of AFL-CIO and American Dental Association":

"The purpose of medical, dental and mental health services and organizations is to maximize the health and well-being of all citizens. It is the common objective of the providers as well as of the consumers of such services that health care should be of high quality and should be available to all people at reasonable cost.

"Systematic programs of prepayment or budgeting are feasible methods of meeting the cost of high quality dental care and making comprehensive dental services available to more people. Exploration of different methods of providing prepaid dental care is needed in order to determine which systems are most effective in meeting the dental health needs of the public. Regardless of the mechanism, experience in prepaid health programs has indicated that these goals can best be accomplished by following these principles:

"1. Dental prepayment programs should make provision for insuring high quality comprehensive dental care.

"2. Where dental prepayment programs are organized, preference should be given to programs organized to serve groups within the entire community.

"3. Regardless of the organizational structure of the prepaid dental program, the practice of dentistry is, of course, the exclusive prerogative of the dental profession; however the provision of dental health services must also be the concern of the consumer and the public.

"4. Freedom of choice for individuals in the group program should include not only free choice of dentists but free choice of plan or program as well.

"5. Remuneration for professional services may be on a fee-for-service, per capita, salary or other basis, depending upon the plan or program. Such remuneration should meet standards of adequacy in relation to the training and experience of the dentist and to the standards established by the dental profession.

"6. Dental prepayment programs should provide for an effective mechanism to insure that the fee procedure stipulated in the contract between the subscribers and the providers of professional services are maintained.

"7. Where funding limitations prevent consideration of a comprehensive prepayment program, deductibles and co-insurance should be considered but the minimization of such features should be given high priority in future developments of the plan or program. High priority should be placed on comprehensive coverage for all patients, particularly children.

"8. Any contract between an organization offering dental prepayment plans and a group of consumers should provide a means by which participants may receive the benefit of impartial review of grievances which may arise out of services provided by the plan or its administration.

"9. Provision should be made for public, consumer and professional representation on the governing boards of dental prepayment and direct service organizations.

"10. Dental health education should be a part of dental prepayment programs and should be jointly planned and conducted by the dental profession."

Public Health

GALLAGHER IS NEW VANCOUVER DIRECTOR

S. J. Gallagher has been appointed director of dental health services for the Metropolitan Health Service of Greater Vancouver. A 1954 graduate of the University of Alberta, Dr. Gallagher received a diploma in dental public health from the University of Toronto in 1958. Since that time he has been continuously employed with the Metropolitan Health Service.

book reviews • analyse

Surgery of Facial Fractures

R. O. Dingman and Paul Natvig. Philadelphia and London, W. B. Saunders Co. 1964 (Available from McAinsh & Co. Ltd. Toronto) 380 p. Illus. $24.30

This book is characterized by the excellent quality of the illustrations and the clear, easy to read print. It is profusely illustrated with drawings, clinical photographs and radiographic reproductions.

The text is divided into 14 chapters which cover the principles and techniques, as well as some of the complications, involved in the treatment of facial fractures. The operative techniques are illustrated with drawings in a step-by-step fashion, so as to supplement the written descriptions.

The section on 'Occlusion and intermaxillary fixation' is obviously written for surgeons, who have had no previous dental training. Other topics, such as 'Injuries to the teeth and alveolar process' and 'Dislocation of the temporomandibular joint' are only briefly discussed.

One cannot but take exception to some statements made in this book. In discussing fractures of the zygoma and zygomatic arch, the statement is made that intra-oral open reduction of fractured zygomatic arches is not an effective method of treatment. Many surgeons would disagree with this opinion, and at least one reputable text in oral surgery recommends this particular approach.

The use of adrenalin with halothane anaesthesia is mentioned in one of the case reports. This combination is no longer recommended by many anaesthetists, because of the possibility of cardiac arrhythmia.

The statement is made on page 323 that "The premature loss of teeth in the child results in the lack of normal development of the body and alveolar process of the maxillary and mandibular bones." While the premature loss of teeth does affect the growth of the alveolar processes of the jaws, it is well known that the growth of the body is not dependent on the presence of teeth. (Weinmann, J. P. and Sicher, H. Bone and bones. Ed. 2. St. Louis, Mosby, 1955, page 111; and Sarnat, B. G., Brodie, A. G. and Kubachi, W. H. Am. J. Dis Child, 86:162, 1953).

The authors go to some trouble to quote from early texts in their historical review of the subject. Several spelling errors are noted in the French quotations, such as 'éndentée' for 'édentée' and 'offriait' for 'offrirait.'

In the preface of the text the authors pointedly exclude any reference to oral surgery in their list of the specialties involved in the treatment of facial fractures, but frequent reference is made to articles published in dental and oral surgery journals, and on one occasion, at least, attention is given to the work of the Chalmers J. Lyons Academy of Oral Surgery. There would seem to be some discrepancy evident here!

In chapter 1, entitled 'Profiling the pioneers,' all of the nine pioneers listed are contemporaries of the authors and plastic surgeons, with the single exception of G. V. Black, and all are Americans with the exception of H. D. Gillies. No mention is made of any of the contributions in this field by oral surgeons and otolaryngologists. The selection of pioneers seems to have been, to state it mildly, rather provincial in its outlook.

Despite these drawbacks, the book is of interest to oral surgeons in their treatment of facial fractures.

W. B. Donohue

Advances in Oral Biology

P. H. Staple. Vol. I. New York, Academic Press Inc., 1964. 353 p. Illus. $14.00

This volume contains eleven sections. Each section is written by an authority in the particular subject and is, in fact, a report of his research over a period of some years including the latest findings. All the contributors are internationally known in the field of dental research, and they come from England, the North American continent, New Zealand, Japan and Switzerland. Each is a recognized authority to whom one would naturally turn with some query in his particular subject.

The book is primarily written for the dental scientist, but the practising dentist would be interested in the sections on supragingival calculus formation (27 pages), or the physiology of mastication (28 pages), and the more inquisitive in the sections on surface acting agents and dental caries (9 pages), the movement and forces involved in tooth eruption (37 pages), or the modifications of the dentine in dental caries (22 pages). The remaining sections are equally valuable in the field of research. They include material on the secretion of saliva (28 pages) and on mucins (18 pages). Each section is short and information comes in a compressed form.

The editor expresses the fear that there is a lack of communication between the majority of the dental profession and the basic scientist. He believes that this has led to a lack of understanding on the part of the basic scientists of problems in the field of clinical dentistry. Since the reviewer knows that several of the contributors indulge in clinical practice as well as in research, contact is already established and this volume, and those which are to follow, may act as a bridge between the disciplines.

G. J. Parfitt

Dental Practice Administration

R. K. Stinaff. Ed. 2. St. Louis, C. V. Mosby Co., 1964. 266 p. Illus. $7.85

This is the second edition of a book by the same author first published in 1960. The new edition has been brought up to date by deletions and additions. It gives splendid information on practice administration to both the student and the practitioner. Even a dentist who only intends to practise for a few more years would reap enjoyment and profit from reading the book.

The following subjects are well covered in separate chapters: concept of practice administration, making a choice, the practice goal, planning the office, equipment for the office and financing, necessary tools, making yourself known, auxiliary personnel, appointment control, office procedures for handling patients, fee payment plans and collections, case presentation and motivation, communications, how to gain and lose patients, lay education, office and personal business involvements, continuing education and affiliations, growth of the practice and the philosophy, ethics and jurisprudence, and "Facing the Facts."

The chapter on appointments is well worth a study by all who wish to make the best use of available time. The final chapter entitled "Facing the Facts" should be studied with due consideration for differences in tax laws and laws regarding settlement of estates between Canada and the United States.

H. S. Crosby

General Anesthesia in Dental Practice

Leonard Monheim. Ed. 2. St. Louis, C. V. Mosby Co., 1964. 467 p. Illus. $10.50

This book devoted to general anaesthesia in dental practice is written by a dentist who limits his practice to this specialty. Practical application of general anaesthesia had its birth in dentistry, and the modern concept of this art and science is presented by Dr. Monheim.

The importance of this information is demonstrated by the hundreds of dental patients who daily require general anaesthesia. The basic concepts of anaesthesia have remained unaltered in the four years since the first edition appeared.

The first edition of this book stressed the philosophy and fundamental aspects of general anaesthesia in dental practice. The purpose of the second edition is the same. Additions and deletions have been made where necessary to bring the text up to date. This reviewer recommends this book highly.

W. J. Evon

Partial Denture Construction

W. L. McCracken. Ed. 2. St. Louis, C. V. Mosby Co., 1964. 530 p. Illus. $14.00

The information contained in this book is presented in an easy to follow style. The book is useful to the undergraduate student, the general practitioner as well as the specialist. Besides the usual content — examination, treatment planning, surveying, designing, impression taking, component parts, and so forth — there are chapters on relining and rebasing and on additions and repairs to partial dentures that will be found useful. The book is a worthwhile addition to any dental library.

R. C. McClelland

in memoriam

FREDERICK FRANCIS BAKER — Dr. F. F. Baker of London, Ontario, died on August 5, 1964. He was 66. Dr. Baker was born in London in 1897. He graduated from the Royal College of Dental Surgeons of Ontario in 1924. During World War I, Dr. Baker served overseas with the Army Medical Corps. Besides his wife, Merle, Dr. Baker is survived by a daughter, Mrs. James Hay, and a son, Robert P., both of London; three sisters, Mrs. Roy Mathers of Detroit, Miss Alice Baker of Toronto, and Mrs. Helen Huyck of London; and three grandchildren.

ARCHIBALD ALEXANDER CASE—Dr. A. A. Case of Waterloo, Ontario, died on June 21, 1964. He was 50. Dr. Case was born in Uxbridge, Ontario, in 1914. He graduated from the University of Toronto in 1941 and practised in Waterloo. He was a former president of the Inter County Dental Society. Surviving Dr. Case are his wife, Helen; a son, Stephen; two daughters, Stephanie and Sidnie; and a brother and a sister.

JAMES ANDREW CERSWELL—Dr. J. A. Cerswell of Toronto died on July 23, 1964. He was 88. Born in Bond Head, Ontario, Dr. Cerswell graduated from the Royal College of Dental Surgeons of Ontario in 1902.

EGBERT WILLIAM CONNELL — Dr. E. W. Connell of Kingston, Ontario, died on July 21, 1964. He was 61. Dr. Connell was born in Spencerville, Ontario, in 1903. After graduating from the Royal College of Dental Surgeons of Ontario in 1926, he practised in Woodbridge, Fort Frances and Preston, Ontario, before going to Kingston. Dr. Connell is survived by his wife, Barbara Elizabeth; two sons, Jim and Jack; and one daughter, Mrs. D. Patterson.

LEE R. DODDS—Dr. L. R. Dodds of Edmonton died on June 22, 1964. He was 70. Dr. Dodds was born in Cavalier, North Dakota, U.S.A., in 1894. Following graduation from the Royal College of Dental Surgeons of Ontario in 1921 he established a practice in Edmonton. During the 1930's he accompanied bush pilots into the north and provided dental care to hunters and trappers from Inuvik to the Arctic. Dr. Dodds is survived by his wife, Margaret; a son, Lee of Edmonton; and two daughters, Mrs. I. Robertson of Prince Albert, Saskatchewan, and Mary of Edmonton.

ROBERT BARRY HAGERMAN—Dr. R. B. Hagerman of East Florenceville, New Brunswick, died on July 10, 1964. He was 85. Following graduation from Tufts Dental College, University of Pennsylvania, in 1903, Dr. Hagerman practised in Florenceville for 60 years. He was an honorary member of the New Brunswick Dental Society. Surviving Dr. Hagerman are four nephews, Bernard and Edward Hagerman, both of Fredericton, John Hume of Florenceville, and James Brown of Bristol.

WILLIAM ALMONT HARTLEY — Dr. W. A. Hartley of Sarnia, Ontario, died on August 3, 1964. Following graduation from the Royal College of Dental Surgeons of Ontario in 1920, he practised in Sarnia until he retired in 1959. Dr. Hartley is survived by two daughters, Mrs. S. Placek and Mrs. P. Carruthers, and two grandchildren, Stephanie Placek and Lynne Carruthers.

FREDERICK GEORGE HENRY—Dr. F. G. Henry of Montreal died on May 11, 1964. He was 96. Dr. Henry was born in Montreal in 1868. He graduated from Bishop's College in 1899 and soon after assumed a teaching position with the Montreal Dental College. When the dental school of McGill University was formed, Dr. Henry became one of the original teachers in the capacity of professor of materia medica and dental pathology, which position he held until his retirement in 1937. During this same period he was also a consulting dental surgeon to the Montreal General Hospital. In 1923 he served as president of the Montreal Dental Club and in 1925

he helped originate the club's annual fall clinic. Upon retirement from McGill University in 1955 he became a professor emeritus. Dr. Henry is survived by one son, G. R. S. Henry, and one daughter, Mrs. G. Monteith.

UNSWORTH NATHANIEL JONES — Dr. U. N. Jones of Toronto died on August 6, 1964. He was 70. Born in Goderich, Ontario, in 1894, Dr. Jones graduated from the University of Toronto in 1921. He established a practice in Toronto and served as a dentist to the Canadian Army (Permanent Force) and on the Board of Governors of the Toronto East General Hospital. During World War I he was with the Royal Naval Air Service. Besides his wife, Isabel, Dr. Jones is survived by two daughters, two sisters and one brother.

LOUIS FREDERICK KRUEGER—Dr. L. F. Krueger of Toronto died on July 4, 1964. He was 81. Dr. Krueger was born in Garnaville, Iowa, U.S.A., in 1883. He graduated from the University of Iowa in 1906 and practised in Garnaville until 1913. He then went to Toronto and following graduation from the Royal College of Dental Surgeons of Ontario in 1914, he practised in that city until 1962. Dr. Krueger was a former president of the Toronto East Dental Society, councillor of the Toronto Academy of Dentistry, a fellow of the American College of Dentists, and a life member of the Royal College of Dental Surgeons of Ontario. From 1915 until 1948 he was connected with the Faculty of Dentistry, University of Toronto. Dr. Krueger is survived by a daughter, Mrs. E. Long, three grandchildren and five great-grandchildren.

ALBERT MOISAN—Le Dr Albert Moisan de la cité de Québec est décédé le 19 juin 1964 à l'âge de 63 ans. Il était né à Québec en 1900 et obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1926.

JOHN WHITE MORTON — Dr. J. W. Morton of Montreal died on August 16, 1964. He was 60. Dr. Morton was born in Montreal in 1904 and graduated from McGill University in 1928.

HENRI ROBILLARD—Le Dr H. Robillard de Vaudreuil, P. Québec, âgé de 63 ans, est décédé le 3 juin 1964. Le Dr Robillard était né â Vaudreuil en 1900. Il obtint le doctorat en chirurgie dentaire à l'Université de Montréal en 1928.

CLARENCE C. SMART—Dr. C. C. Smart of Templeton, P. Quebec, died on June 17, 1964. He graduated from the Royal College of Dental Surgeons of Ontario in 1921 and practised in Ottawa.

HAROLD B. STEEVES—Dr. H. B. Steeves of Moncton, New Brunswick, died on May 8, 1964. He graduated from the Baltimore College of Dental Surgery (University of Maryland) and was a practising dentist for many years. During World War II he served overseas with the Canadian Dental Corps. Besides his wife, Doreen, Dr. Steeves is survived by five sons, Winston, Stanley, Elton, Donald and Wayne, all of Moncton; five daughters, Dorothy, Linda, Patsy, Darlene of Moncton and Mrs. N. Dyment of Dartmouth; five sisters, Mrs. B. Keith, Mrs. G. Harris and Mrs. C. Horton of Moncton, Mrs. B. Alcoe of Chicago and Miss Emma Steeves of River Glade; and one brother, Ross of Hillsboro.

HENRY ANDREW WILSON—Dr. H. A. Wilson of Cooksville, Ontario, died on June 4, 1964. He was 74. Born in Wardsville, Ontario, in 1889, Dr. Wilson graduated from the Royal College of Dental Surgeons of Ontario in 1911 and was made a life member of the college in 1961. He practised in Wardsville, Toronto and Cooksville. Surviving Dr. Wilson are his wife, Madelyn Lee; two sons, Lee and Jack; and six grandchildren.

FRANK JAMES WRIGHT—Dr. F. J. Wright of Toronto died on August 6, 1964. He was 77. Dr. Wright was born in Seaforth, Ontario, in 1887 and graduated from the Royal College of Dental Surgeons of Ontario in 1915. Surviving are his wife, Hilda, and a daughter, Mrs. W. Dinnie.

announcements • avis

CANADIAN DENTAL ASSOCIATION

1964		
1965	Quebec City	May 30-June 2
1966	Halifax	June 12-15
1967	Toronto	May 14-17

FÉDÉRATION DENTAIRE INTERNATIONALE

San Francisco	November 7-14
Vienna	June 26-July 3
Israel	
Paris	July 7-13

Oct. 24-25, 1964	Montreal Dental Club Pre-Clinic Seminar	Queen Elizabeth Hotel, Montreal	Dr. George Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Oct. 26-27, 1964	Montreal Dental Club Fall Clinic	Queen Elizabeth Hotel, Montreal	Dr. George Dundass	4545 Sherbrooke Street W., Westmount, Montreal 6, P. Que.
Nov. 9-12, 1964	American Dental Association	San Francisco, California	Dr. H. Hillenbrand	222 East Superior Street, Chicago 11, Illinois, U.S.A.
23-29 nov., 1964	38es Journées dentaires internationales de Paris	Maison de la Chimie, Paris	M. Henri Sahel	75 rue Blanche, Paris-9e, France
Nov. 26, 1964	Annual Winter Clinic, Toronto Academy of Dentistry	Royal York Hotel, Toronto	Mrs. N. H. Montgomery	230 St. George Street, Toronto 5, Ont.
Dec. 26-31, 1964	American Association for the Advancement of Science	Queen Elizabeth Hotel, Montreal	Mr. R. L. Taylor	1515 Massachusetts Avenue N.W., Washington 5, D.C., U.S.A.
Jan. 22-23, 1965	Mid-Winter Clinic, Vancouver and District Dental Society	Hotel Vancouver, Vancouver	Dr. T. E. Rammage	1407 West Broadway, Vancouver, B.C.

POSTGRADUATE AND REFRESHER COURSES

TORONTO • The Department of Paedodontics, Faculty of Dentistry, University of Toronto, offers a postgraduate course in PAEDODONTICS, January 4-5, 1965. W. E. Blatz, professor of psychology, University of Toronto, will lecture on child psychology. Members of the staff of the Hospital for Sick Children, Toronto, will present aspects of nutrition and paediatrics. Clinical paedodontics, including radiology, space maintenance, and patient examination, will be discussed and demonstrated by staff members of the Faculty of Dentistry. The course will be directed by S. A. MacGregor and K. W. Davey. Tuition fee $40. Enquiries and requests for application forms should be directed to the chairman, Division of Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

MANITOBA • The Faculty of Dentistry, University of Manitoba, offers a postgraduate course in DENTAL MATERIALS, November 20-21, 1964. The course is designed to acquaint the general practitioner with recent findings from research in dental materials. The practical application of this knowledge to general dental practice is stressed. Restorative, prosthetic and orthodontic materials will be discussed. The course will be directed by R. W. Phillips. Tuition fee $50. Enquiries and requests for application forms should be directed to the director, Department of University Extension and Adult Education, University of Manitoba, Winnipeg 3, Manitoba.

MANITOBA • The Faculty of Dentistry, University of Manitoba, offers a postgraduate course on the TEMPOROMANDIBULAR JOINT, December 7-8, 1964. Problems in periodontics, full-mouth rehabilitation and prosthodontics will be discussed. The course will be directed by Henry Sicher. Tuition fee $50. Enquiries and requests for application forms should be directed to the director, Department of University Extension and Adult Education, University of Manitoba, Winnipeg 3, Manitoba.

Note • Due to lack of space the Journal cannot accommodate all announcements of foreign dental meetings and postgraduate and refresher courses. Readers are invited to write to C.D.A. headquarters for information concerning unlisted meetings and courses. Further information concerning listed meetings and courses should be sought from the sponsoring institution.

canadian dental association retirement savings plan

Quarterly report

August 31, 1964

	Amount invested	*Market value*	*Unit value*
Government Bond Fund	$ 388,163	$ 393,287	$13.003
Corporate Bond Fund	716,208	721,431	13.777
Common Stock Fund	1,832,983	2,242,801	18.591
	$2,937,354	$3,357,519	

- Average Individual Contribution in 1963: $1,324.
- Benefits of the plan: (1) Contributions are tax deductible; (2) Diversification through three funds; (3) Protects your retirement savings dollars against inflation.
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plan d'épargne-retraite association dentaire canadienne

Rapport trimestriel

le 31 août 1964

	Montant investi	*Valeur au marché*	*Valeur unitaire*
Fonds d'obligations gouvernementales	$ 388,163	$ 393,287	$13.003
Fonds d'obligations corporatives	716,208	721,431	13.777
Fonds d'actions ordinaires	1,832,983	2,242,801	18.591
	$2,937,354	$3,357,519	

- Cotisation individuelle en 1963: $1,324.
- Avantages du régime: (1) La déduction des cotisations de l'impôt; (2) La diversification qu'assurent les trois fonds; (3) La protection de vos épargnes contre l'inflation.
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The Canadian Dental Association

JOURNAL

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A when and where formula for space maintenance

S. A. MacGregor, D.D.S., Toronto, Ontario*

Some spaces resulting from premature tooth loss in children tend to close whereas other spaces do not. The author describes 20 common combinations of deciduous and permanent tooth loss, and indicates in each instance whether or not space maintenance is required. The different appliances advocated and the duration of their insertion are described. Construction of T-bar and intra-alveolar cast space maintainers is described in detail.

L'extraction prématurée de dents chez les enfants crée des espaces: parfois, les dents voisines tendent à migrer; d'autres fois, elles restent en place. L'auteur décrit une vingtaine de situations amenées par la perte de dents primaires et permanentes et il indique dans quels cas il faut se servir d'appareils pour maintenir le vide créé par la perte de dents. Il suggère diverses sortes d'appareils et la période de temps durant laquelle ils doivent être laissés en place. Il décrit, avec force détails, la confection d'une barre en T et d'appareils intra-alvéolaires coulés.

*Professor and head, Department of Paedodontics, University of Toronto.

As early as 1746 Pierre Fauchard[1] claimed that early loss of 'milk molars' caused irregularity to the alignment of the secondary teeth, Hunter,[2] in 1839, warned, "If the temporary teeth be removed before the permanent ones are ready to fall into their place, the jaw will contract considerably during the growth of the child and thus create a discrepancy between the size of the new teeth and the extent of the arch which they occupy."

Since these early years many articles have been written on space maintenance. In fact dental libraries are filled with articles about the neglect of space maintenance on the part of the dentist and the public. Nothing needs to be added to what has already been written with respect to this phase of the subject.

A great deal has been said about the types of space maintainers and the techniques used in their construction, but not too much has been written about when and where to maintain space. Each author has his personal approach but there has been little supporting scientific research. Paedodontic teachers might well examine the progress of orthodontics and note how the orthodontist has applied new knowledge in basic science to his particular field.

Pollock,[3] in discussing schools of thought and their relationship to orthodontic practice, observes in the recorded literature "conflicting viewpoints that are as opposite as the poles of the earth. Much of this seems to be a result of the indoctrination to which the author has been exposed. Like Indian lore, if you are briefed in one school in your formative years, that is the 'Party Line' you will follow; if by another, then you will adhere to that school and so on, whether it is orthodontics, theology or something else you will beat the 'Tom Toms' for that which you have been taught with a crusading fervour." The truth of Pollock's statement is similarly reflected in the literature on space maintenance.

Variety in schools of thought is often stimulating. But in the realm of science, procedures that lack the support of sound research or extended clinical observation may be potentially hazardous. Procedures advocated in this paper are based on research projects recorded in the literature as well as the author's personal clinical observations during 33 years of dealing with children.

A number of studies by competent workers are of questionable value because they were based on rather small samples. Such research must be of long duration, and the loss of material is usually great. Therefore these investigators must be congratulated for what they have accomplished.

Kronfeld[4] (1953), in a 14-year study of 400 children (four years and up), investigated the effects of premature loss of 68 first deciduous molars and 52 second deciduous molars. He concluded that there was a need for space maintenance in 70 per cent of the prematurely lost second deciduous molars, in 51 per cent of prematurely lost first deciduous molars and in 81 per cent of prematurely lost deciduous cuspids. With respect to premature loss of the deciduous cuspid, Hinrichsen[5] observes, "Early exfoliation of the deciduous canine is more the result, rather than the cause of arch deficiency, but extraction can be traumatic to the dentition if performed before a period of active growth."

Brauer[6] (1941) reported on a study of 113 cases of premature loss of deciduous molars. Forty-two of these were first molars and 71 were second molars. His findings were as follows: (1) of first deciduous molars lost prematurely, 33 1/3 per cent of the spaces closed — resulting in malocclusion; (2) of the second deciduous molars lost prematurely, 50 per cent of the spaces closed — resulting in malocclusion; (3) of first and second deciduous molars lost prematurely, 80 per cent of first bicuspids erupted normally but approximately 50 per cent of the second bicuspids did not erupt normally.

Cohen[7] (1941) studied 156 children (two to 16 years) and found 33 deciduous molars lost prematurely. Fifteen of these were second deciduous molars and 18

were first deciduous molars. He concluded that: (1) in premature loss of the first deciduous molar, 94 per cent of the cases developed normally; (2) in loss of the second deciduous molar, 60 per cent of the cases developed normally; (3) the age at which loss occurs has no bearing on development. Few, if any, will agree with the latter statement.

Despite apparent disagreement in these early reports, there is sufficient evidence that premature loss of deciduous teeth contributes to the development of malocclusion.

Others have also furnished important information. Singh[8] (1960) stated, "Drifting of teeth, it must be remembered, can take place in the pre-eruption, prefunctional or functional stages of the eruption of teeth." Davey[9] (1962) showed that the largest amount of space loss results where the deciduous tooth loss occurs before the eruption of the first permanent molar. Cheyne and Wessels[10] (1947) observed that spaces do not close as rapidly in older children as in younger children and that good cuspal interdigitation tends to prevent drifting. Liu[11] (1949) observed that loss of space in the maxilla was twice as great as loss of space in the mandible when deciduous teeth were prematurely lost.

Despite the foregoing data we still cannot predict exactly whether a given space is likely to close or remain open. The only guide for when and where to construct space maintainers has been of an imprecise nature. We are told to observe either the amount of bone over the erupting permanent teeth or to observe the relative root development of the permanent tooth and root resorption of the deciduous predecessor.

This information is of little help when teaching undergraduate students treatment planning in space maintenance. In 1945 the author therefore devised a 'when and where formula'[12] as a yardstick for treatment planning. This guide is based on clinical observations and accepted knowledge of the sequence of eruption as related to jaw growth.

For instance we know that mesial drift of posterior teeth is nature's mechanism for closing contacts and compensating for interproximal wear.[13] It is also an accepted fact that teeth will erupt into the path of least resistance; indeed it is because of this principle that serial extraction is an accepted method of orthodontic care.

Baume[14] (1950) has shown that where there is a primate space in the mandibular arch, mesial to the first deciduous molar, the erupting first permanent molar can push the two deciduous molars forward thereby closing a two to three millimetre primate space. Known as an early mesial shift, this phenomenon is due to the eruptive force of the first permanent molar. We can also expect the erupting permanent lateral incisor to exert a similar force upon the deciduous cuspid when the first deciduous molar is lost prematurely. These considerations, plus Davey's observation[5] that space loss is greater if the second deciduous molar is lost before the first permanent molar erupts, are the basis of the suggested formula. They should eliminate any lingering doubts as to the need for intra-alveolar space maintainers.

Where and when formula

Teeth and Arch Size in Harmony.—The following measures are taken to maintain space where teeth and arch size are in harmony:

1. If the first deciduous molar is lost before the first permanent molar erupts, the space is quite vulnerable since the erupting force of the first permanent molar tends to push the second deciduous molar mesially thus closing the space (Figures 1 and 2). In these circumstances a space maintainer is indicated.

2. If the first deciduous molar is lost after the first permanent molar has fully erupted but the permanent lateral incisor has not yet fully erupted, a space maintainer is needed to prevent the erupting force of the permanent lateral incisor from pushing the cuspid into the space (Figure 3).

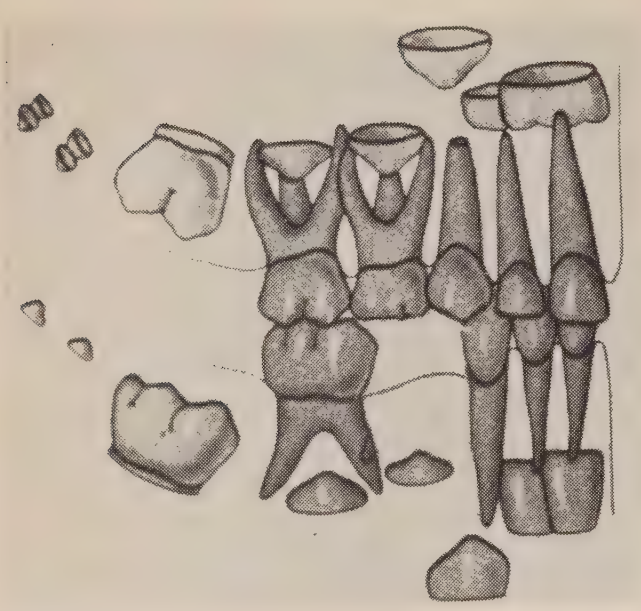


FIGURE 1 (After Schour and Massler, University of Illinois College of Dentistry.)

3. If the first deciduous molar is lost after the first permanent molar and the permanent lateral incisor are fully erupted, a space maintainer is not required since no force is being exerted on the teeth approximating the space (Figure 4).

4. When the second deciduous molar is lost before the first permanent molar erupts, the space is quite vulnerable since the first permanent molar may follow the path of least resistance thus closing the space as it erupts. In a 2½- or three-year old child the first permanent molar usually has a considerable mesial inclination. Without the terminal plane of the second deciduous molar to direct it occlusally, the permanent molar is more liable to continue erupting in a mesial direction. When this happens the space closes much more quickly in the maxilla than in the mandible. Obviously, the sooner an intra-alveolar space maintainer is constructed the better.

FIGURE 3 (After Schour and Massler, University of Illinois College of Dentistry.)

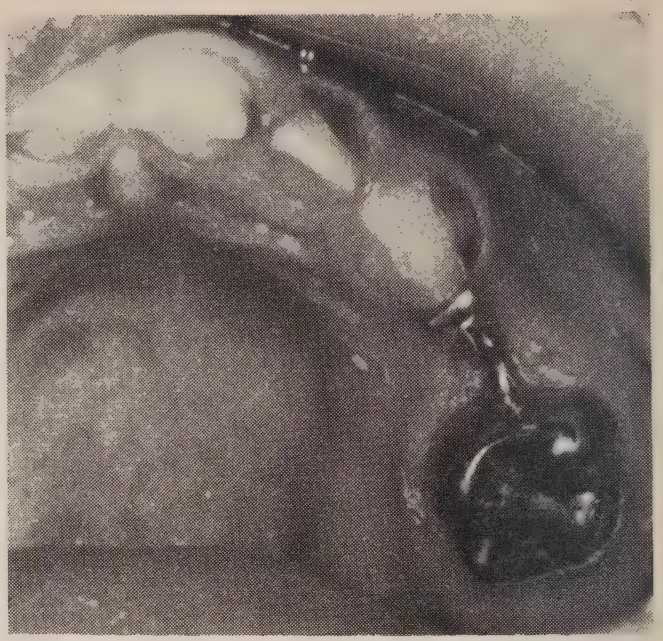


FIGURE 2 T-bar space maintainer used when the first deciduous molar is lost prematurely. When the second deciduous molar is lost prematurely after the first permanent molar has erupted, the cross arm is placed in a vertical position in line with the long axis of the tooth. This prevents the first permanent molar from tipping mesially as it erupts.

5. Two possibilities arise when the second deciduous molar is lost after the first permanent molar erupts. The second permanent molar may push the first permanent molar mesially and the permanent cuspid and first bicuspid may move distally (Figure 5). When either or both conditions occur space loss is inevitable if a space maintainer is not constructed.

We know that all spaces do not close. But our inability to predict the outcome makes a space maintainer for all cases of premature loss of the second deciduous molar an excellent insurance against space closure and long-term orthodontic care. Those who prefer to "watch" the space usually become eye witnesses to space closure.

Tooth:Arch Size Discrepancy. — Duration of space maintenance after premature loss of the first deciduous molar may vary when there is discrepancy between tooth and arch size, and when future orthodontic removal of first bicuspids is a possibility.

6. For instance, serial extraction is indicated when the erupting two lower permanent central incisors cause exfoliation of the four deciduous incisors and almost completely fill the space between the deciduous cuspids. A removable space maintainer is constructed when the first deciduous molar is lost prematurely in a mouth with tooth:arch size discrepancy of this kind and where the first permanent molar and the permanent lateral incisor have not yet erupted. But because of the necessity of early orthodontic care parents are told that the space maintainer will only be worn until the first permanent molar fully erupts. The deciduous cuspids are then extracted to allow the permanent lateral incisors to erupt in a normal position at a later date. If the permanent cuspid on the side opposite the prematurely lost first deciduous molar appears to erupt ahead of the first bicuspid, the other first deciduous molar is extracted. This prevents mid-line shift.

7. If, under similar conditions, the first deciduous molar is lost after the first permanent molar has fully erupted, it is preferable not to construct a space maintainer. We simply extract the deciduous cuspids and the first deciduous molar on the opposite side. This allows the four permanent central incisors to align themselves properly and preserves the centre line position (Figure 6).

8. Serial extraction may be inadvisable where the lower permanent central incisors erupt in a crowded relationship but the deciduous lateral incisors are not lost. A space maintainer is constructed in such circumstances if a first deciduous molar is lost before the first permanent lar erupts. The deciduous cuspids are ·ced mesially as the permanent lateral ors erupt, allowing the latter to drift —lly. If serial extraction is still required, the deciduous cuspids and the opposite deciduous molar are extracted when the lateral incisors are two-thirds erupted. The arm of the space maintainer is also removed. This again preserves the mid-line in normal position. A lingual arch should be constructed if the foregoing condition is accompanied by a deep overbite and the orthodontist fears that the central incisors may tip lingually.

FIGURE 4 (After Schour and Massler, University of Illinois College of Dentistry.)

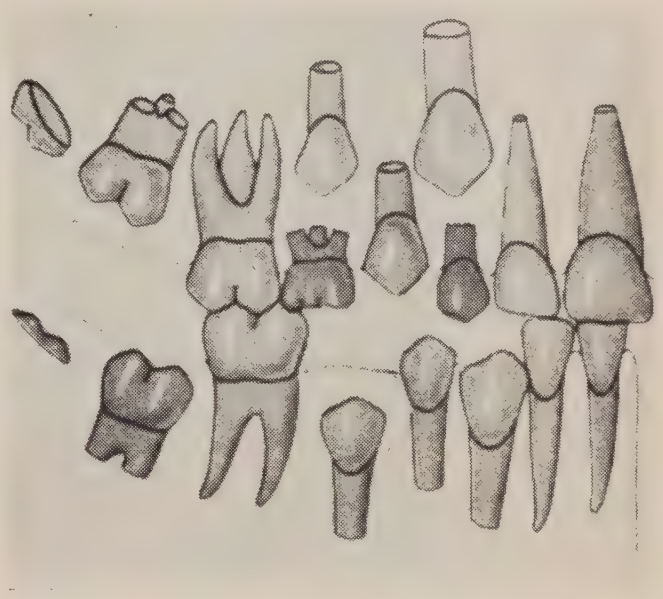


FIGURE 5 (After Schour and Massler, University of Illinois College of Dentistry.)

The following is a useful rule for space maintenance in the presence of

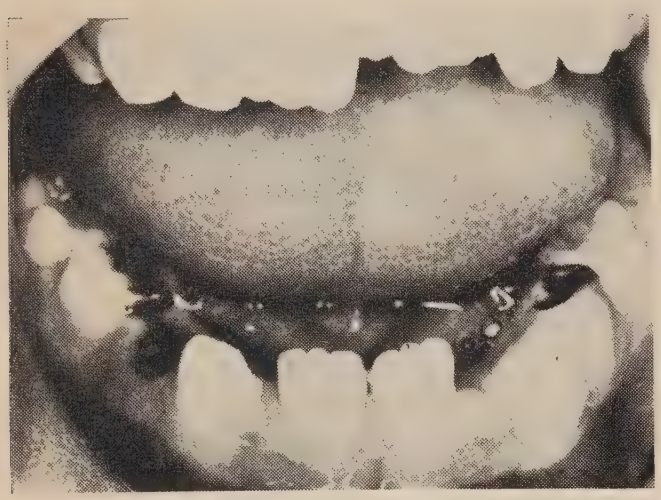


FIGURE 6 Erupting lower permanent central incisors almost fill the space between the deciduous cuspids. The lower right first deciduous molar was lost after the first permanent molar had fully erupted.

tooth:arch size discrepancy: "It is imperative to maintain space when there is complete discrepancy and when all or most of the space is required to align the remaining teeth. Space maintenance is undesirable where symmetrical extraction is necessary but only part of the space is required to align the remaining teeth. Under such circumstances an orthodontist should always be consulted. When serial extraction is recommended by the orthodontist it is his responsibility to keep the child under periodic observation until further orthodontic therapy can be carried out." Figure 7 illustrates forward movement of lower first and second permanent molars, blocking the unerupted second bicuspids, in a child whose four first bicuspids were enucleated three years earlier. This child had not been put on periodic recall by the orthodontist.

Serial extraction can be very successful. But often the orthodontist is not sufficiently emphatic when explaining to parents that this is only one step in the treatment plan. Extractions often improve the child's appearance to such an extent that parents are content with the results and decline further treatment. As a result spaces are left in the back of the mouth, teeth remain tilted in various directions, and occlusion — in terms of function — leaves much to be desired. Before proceeding with any extractions, the orthodontist must clearly indicate to the parents that function is of paramount importance. Extractions should not be done unless parents agree to carry the case to completion.

Infection

9. When deciduous molars must be extracted because of acute infection, parents are told that a space maintainer is mandatory. They are warned, however, that infection often hastens eruption and the space maintainer may only have to be worn for a short time. The dentist must consider this when designing an appliance for this purpose (Figures 8 and 9). A quick-curing acrylic saddle adequately holds the space until the permanent successor penetrates the gingiva.

FIGURE 7 Forward movement of lower first and second permanent molars. The four first bicuspids were enucleated three years earlier.

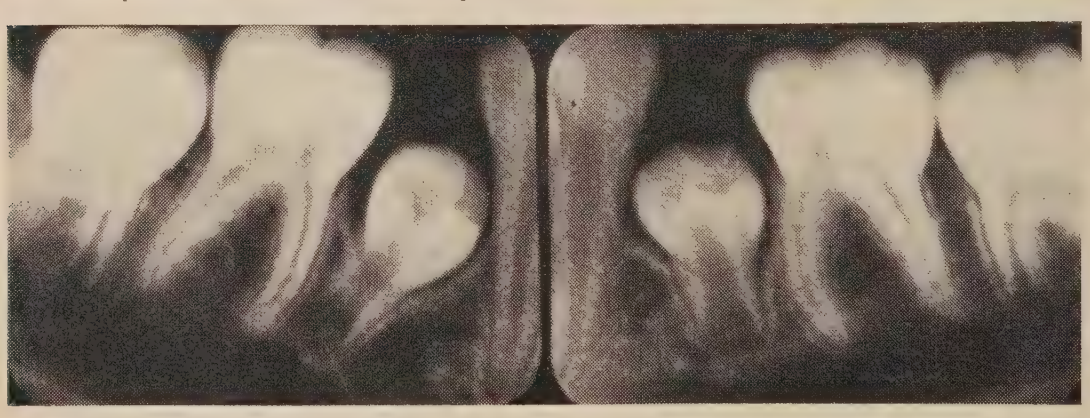


FIGURE 8 Extensive pulp involvement in the upper right second deciduous molar with a history of extreme swelling in a 7½-year-old child. The parent was told that the second bicuspid would not erupt until the child was 11 years of age and that a space maintainer was necessary. The upper right first deciduous molar was restored and an appointment was made for two weeks later at which time an impression was to be taken for the space maintainer.

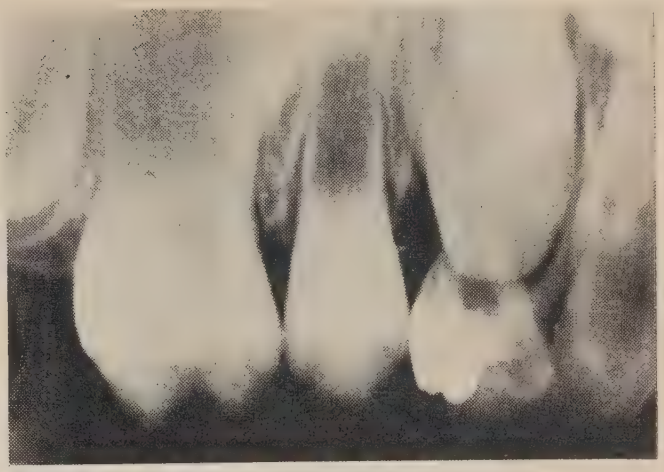


FIGURE 9 Case illustrated in Figure 8, two weeks later. The second bicuspid has started to erupt. The parent's confidence was shattered despite the fact that she was shown in the radiograph that the root of the bicuspid was only starting to develop and that early eruption was most unusual.

Loss of First and Second Deciduous Molars

10. Unilateral premature loss of both deciduous molars before the first permanent molar erupts is treated with an intra-alveolar space maintainer (Figures 10 and 11). The deciduous cuspid is used as an abutment. When the first permanent molar erupts the intra-alveolar arm is cut off at the back of the deciduous cuspid crown and a unilateral denture constructed. No clasps are used but a rest is placed interproximally between the contralateral molars. Because no clasps are used the surfaces of the teeth approximating the space on the model are slightly relieved, thus making the denture fit snugly when first placed in the mouth. The denture will gradually fit less snugly, but by that time the child will have learned to use it. Similar treatment is used for bilateral premature loss of deciduous molars before the first permanent molar erupts. With unilateral or bilateral extractions after eruption of the first permanent molars the design of removable space maintainers is similar. When a primate space exists such an appliance may delay early mesial shift of the first permanent molar. Parents are advised that removable appliances of

FIGURE 10 Radiograph of an intra-alveolar space maintainer.

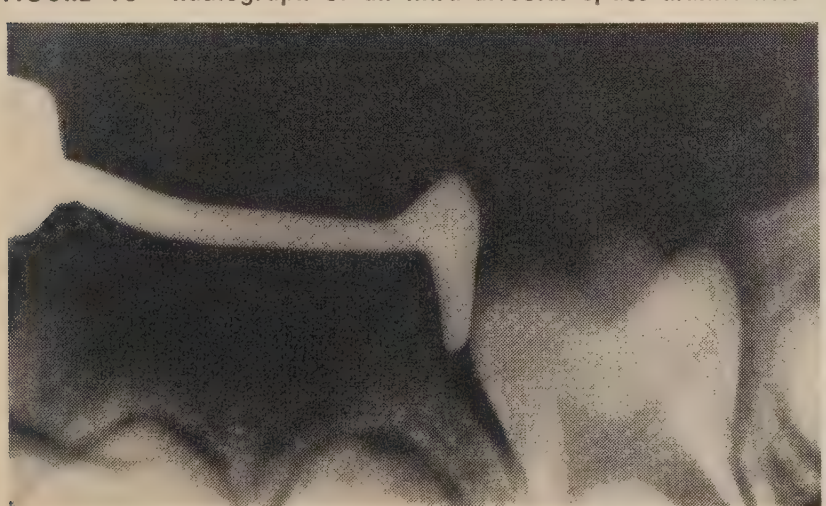


FIGURE 11 Intra-alveolar space maintainer inserted two years previously.

FIGURE 12 Anterior T-bar space maintainer in the mouth of a young child.

this type have to be adjusted as the permanent teeth erupt.

Deciduous Incisors and Cuspids

11. A space maintainer is required if an upper or lower deciduous central incisor is lost before the deciduous cuspid erupts because the deciduous cuspid may push the deciduous lateral incisor mesially (Figure 12). This closes the space and permits forward drift of the posterior teeth on the same side of the arch.

12. Space retention is not required if one or more upper deciduous central incisors are lost after the deciduous cuspids fully erupt. An appliance may nevertheless be desirable (1) to prevent speech defects, (2) to prevent tongue thrusting, and (3) to improve appearance (Figures 13 and 14).

13. Space retention is necessary in a normally developed arch if a deciduous cuspid is prematurely lost due to accident or caries. This prevents mid-line shift.

Loss of a deciduous cuspid through ectopic eruption of the permanent lateral incisor, a problem arising from tooth: arch size discrepancy and thus related to serial extraction, is treated by balanced extraction of the deciduous cuspids rather than space maintenance. A mixed dentition analysis is useful here.

14. Because the lower arch is inside the upper arch, space loss ensues if the lower deciduous incisors are lost after the deciduous cuspids erupt. But the space re-opens when the permanent teeth erupt.

15. Occasionally infants are born with erupted lower incisors. These teeth are usually extracted to preclude hurting the child and mother during nursing or prevent aspiration of the tooth. Space maintenance as impossible at this early age, but orthodontic treatment will later be required.

Permanent Teeth.—Space maintenance in the permanent dentition is mandatory in certain areas of the mouth. The teeth most vulnerable to loss through accident are the upper central incisors; those most vulnerable to loss through caries are the first permanent molars.

FIGURE 13 Premature loss of two deciduous central incisors and a deciduous lateral incisor due to accident.

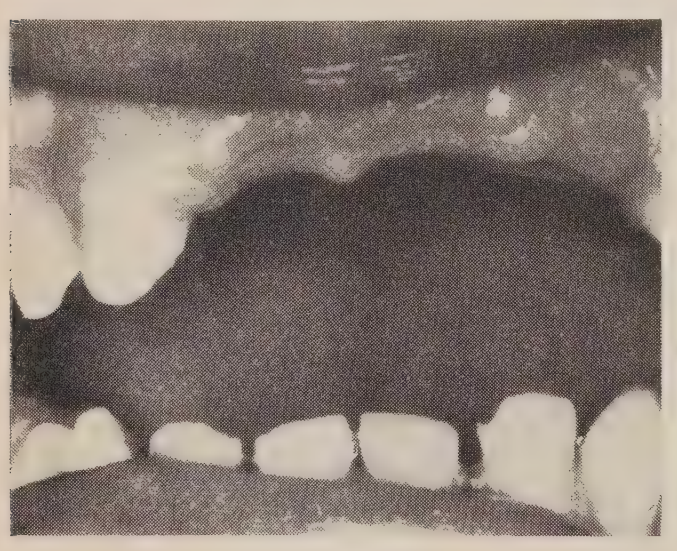
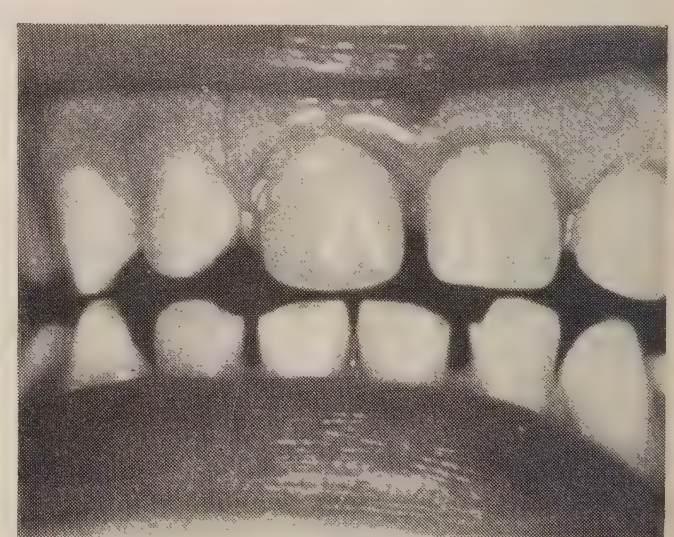


FIGURE 14 Prosthetic appliance replacing the three deciduous teeth described in Figure 13.



16. Replantation may be attempted if an upper central incisor is accidentally lost before the permanent lateral incisor erupts. Replantation should be carried out immediately since this is the only way to prevent the unerupted lateral incisor and cuspid from drifting mesially (Figure 15). The parents are told that this is a temporary measure because root resorption of the implanted tooth usually follows within a short time. They are advised that we hope to retain the central incisor until the lateral incisor erupts.

17. If a permanent central or lateral incisor is lost after the four permanent incisors have erupted, a removable appliance should be inserted to hold the space until it is replaced by a fixed appliance at a later age.

18. When a lower first permanent molar has a pulp involvement, saving the tooth through endodontic treatment should be the first consideration. But if endodontic treatment is contra-indicated and extraction is necessary, the question of how to deal with the space becomes most important. If the second permanent molar has not yet erupted one may choose from the following alternative avenues of treatment:

(a) Construct a removable appliance replacing the first permanent molar with a view to guiding the second permanent molar into as normal a position as possible. The appliance is worn until the child is old enough to have a fixed bridge constructed.

(b) Allow the second permanent molar to drift mesially as far as possible, and then orthodontically move it into contact with the second bicuspid. This treatment is contra-indicated if a third molar is not present.

(c) Allow the second permanent molar to erupt until its mesial marginal ridge engages the distal marginal ridge of the upper first permanent molar, and then extract the upper first permanent molar. Shortly thereafter the upper second permanent molar will erupt and engage the lower second permanent molar. Then

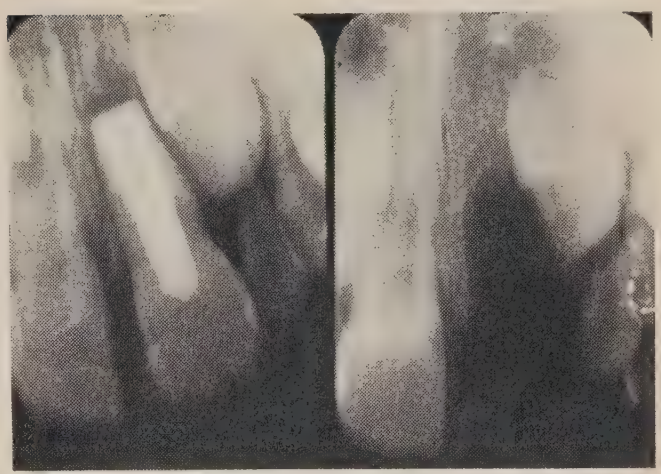


FIGURE 15 Replantation (l.) of a permanent central incisor before the permanent lateral incisor has erupted. Operation performed by C. D. Torneck, Faculty of Dentistry, University of Toronto.

there is a good chance of both teeth moving forward into a reasonably upright position.

If nothing is done after the first permanent lower molar is extracted, the second permanent molar will erupt with a mesial inclination. Occlusion with the upper first molar will increase this mesial inclination to the point where periodontal prognosis becomes doubtful (Figure 16).

19. Treatment following extraction of the upper first permanent molar depends upon whether or not the third molar is present. If a third molar is present it is wise to allow the upper second molar to drift mesially. In most instances the space

FIGURE 16 Loss of the lower first permanent molar and severe mesial inclination of the lower second permanent molar. Because space maintenance was neglected in the upper arch the upper second bicuspid is impacted.

FIGURE 17 Arm of T-bar space maintainer sited to coincide with occlusal groove of bicuspid.

will be closed and the second and third molars will finally align themselves properly in the arch. But if a third molar is absent it is necessary to hold the space with a removable appliance until the patient is old enough for a fixed bridge.

20. Space management in connection with congenitally missing second bicuspids is more complex. This is due to the variable age at which bicuspids develop. Such teeth may develop as late as 7½ or eight years of age. If the absence is discovered before six years of age and one were positive that development would not take place, then the ideal approach would be to extract the second deciduous molars and let the first permanent molars drift forward as they erupt. This is inadvisable, however, for one can never be positive whether or not bicuspids will erupt at a later date. Treatment depends on how many second bicuspids are missing and in what location. It also depends on development of the arches and alignment of the teeth.

FIGURE 18 Wire space maintainer that had to be removed because of severe pain as a result of the wire being deeply embedded in the tissue.

Treatment for congenitally missing second bicuspids in a mouth with class I occlusion, well developed arches and well aligned teeth offers the following choices:

(a) If all four second bicuspids are missing (with little likelihood of them developing), extract the second deciduous molars after 7½ or eight years of age and construct upper and lower removable appliances. From time to time remove a slice from the distal end of each appliance, thus allowing the second permanent molars to push the first permanent molars forward in an upright position. A spring exerting pressure on the distal aspect of the first permanent molar hastens treatment. Some recommend that the second deciduous molars be left in position and reduced distally to permit mesial drift of the permanent molars. This practice is unwise because food impaction may endanger the permanent molars, whereas with the removable appliance the mesial surface of these teeth can be kept clean. When the second permanent molars have fully erupted one cannot expect much more from this type of appliance, if third molars are missing. In that event orthodontic treatment is necessary to complete forward movement of the molars.

(b) If only the upper second bicuspids are missing, guide the upper first permanent molars mesially into a class II relationship with the lower molars, using the appliance described in (a).

(c) If one or both lower second bicuspids are missing, reduce the second deciduous molar mesially to the approximate width of the bicuspid. This allows

normal eruption of the cuspid and first bicuspid and holds the space until the child is old enough to receive a fixed bridge. If parents object to a bridge they may be advised that the molars can be moved forward to close the space by orthodontic treatment.

(d) Missing second bicuspids in the presence of occlusal complications or crowded teeth present a more serious problem for which orthodontic consultation is advised.

Requirements of a successful space maintainer

A successful appliance should possess the following attributes:

(a) The appliance should be designed so that the teeth approximating the space are held in an upright position.

(b) The appliance must not interfere with normal function or growth (as in a free end abutment).

(c) The design should permit partial eruption of the permanent tooth without interfering with the normal direction of eruption in case the child is unavailable for observation when the tooth starts to erupt (Figure 17). Accordingly, the arm of the T-bar space maintainer is sited to coincide with the occlusal groove of the bicuspid, thereby keeping that tooth upright. The arm may suppress the bicuspid for a time but will not tilt the tooth out of its normal path of eruption. The arm can be cut off when the child later returns, and no harm will have been done in the meantime.

(d) Short cuts, such as splinting the teeth with orthodontic wire, or ready-made bands or loops, are undesirable (Figure 18). Wire appliances have been advocated because they are easy to adjust. But anything that is easily adjusted by the dentist is just as easily distorted by hard and soft foods. If the child bites on something hard the wire bends down. If he chews something sticky it is pulled up. When this happens repeatedly breakage is inevitable and we have a disgruntled child and an unhappy parent. There is also a growing tendency to substitute ready-made steel crowns for recognized operative and restorative procedures in children. This practice cannot be too strongly condemned.

(e) The appliance should be comfortable and easily kept clean.

(f) The space maintainer must be constructed of a material sufficiently durable to withstand the hard and sticky foods so common to our modern society.

(g) In cases of multiple extraction, the appliance must not permit extrusion of opposing teeth.

In the light of these principles, three different types of space maintainers recommended are the T-bar cast space maintainer, the intra-alveolar cast space maintainer, and the acrylic denture space maintainer.

T-bar cast space maintainers

Cast space maintainers are used whenever possible because of their durability. Since the crown of the deciduous tooth is completely covered there is no chance of the appliance loosening and the tooth becoming decalcified or carious as often happens when bands are used over a long period of time. Permanent teeth are never used as an anchorage with this type of space maintainer.

Preparation.—All carious areas in the abutment tooth must be first restored with silver amalgam. With a disk placed in a guard take a slight slice off the mesial and distal surfaces. This should be barely enough to flatten these surfaces and the slices should be parallel. Deepen the occlusal grooves with a No. 22 round stone and relieve the top of the cusps and incline planes with a flat stone. The whole occlusal surface should be reduced about three-quarters of a millimetre. With a pencil stone relieve the undercuts from the buccal and lingual surfaces.

Impression.—Lubricate the tooth with a lubricant (50 per cent glycerine and 50 per cent alcohol). Choose a copper band that fits snugly but still allows for sufficient compound to give a clear impression. Cut the band to extend 2½-3 mm. above the occlusal surface. Festoon the band slightly on the mesial, distal and lingual sides. Spread some petroleum jelly over a patch on the bracket table paper tray cover and lay the band on it. Heat impression compound, melt it into the band and allow it to cool slightly. Then lubricate the ball of the first finger and with it lift the band from the tray. When in position on the tooth, force the band well down slightly below the free margin of the gingiva. Cool the impression but do not remove. In a crown and bridge tray take a quick-setting plaster impression of the copper band and the adjacent teeth. When the plaster is hard, remove the combined impression with the copper band impression firmly embedded in the plaster. Now register centric occlusal relationship with a pink wax block in which tin foil has been embedded. Mandibular excursion to the working side may be prevented by inserting a small piece of paper between the opposing teeth of the contralateral side as the patient bites. Remove and cool the wax block and melt inlay wax into the imprint of the opposing teeth. Re-insert the wax block in position and ask the patient to close his teeth. This yields a good imprint of the opposing teeth. To prevent exfoliation of the abutment tooth place a 36 gauge aluminum crown form with temporary cement over the tooth. Dismiss the patient.

When the plaster impression is dry, pack the copper band impression with amalgam. A loop embedded in the amalgam assures retention when the stone model is poured. A small nail with a 2 mm. head, bent into a loop, is most satisfactory. The head of the nail is easily embedded in the amalgam. When the amalgam is hard lubricate the plaster impression with green soap and pour the model in stone. This gives an amalgam model of the abutment embedded in a stone model of the arch involved. Mount this model and the wax bite registration on a crown and bridge articulator. This provides the dental laboratory technician with a good model from which to work. Very little chairside time is required when the space maintainer is returned since the cast crown is made to contact an accurate index of the opposing teeth.

A T-bar cast space maintainer is principally used to replace the first deciduous molar and to replace the upper deciduous central incisor when lost before the deciduous cuspid erupts (Figures 2 and 12).

Intra-alveolar space maintainer

When Willett originally designed this space maintainer the length of the horizontal arm was determined by measuring from the distal surface of the abutment tooth to the mesial surface of the unerupted first permanent molar. This measurement is sometimes unsatisfactory. If the lower left second deciduous molar in Figure 19 were lost prematurely, this measurement would be satisfactory since the lower left first permanent molar contacts the distal surface of the second deciduous molar. But if the lower right second deciduous molar were lost prematurely and an intra-alveolar space maintainer required, a measurement extending from the abutment tooth to the mesial surface of the unerupted lower right first permanent molar would be excessive, holding that tooth too far distally and creating a class II molar relationship.

We now use Baume's terminal planes for guidance on where to bore the hole in the model for the vertical arm of the intra-alveolar space maintainer. If at all possible take an impression before extracting the second deciduous molar involved. When the model is poured, with a No. 701 or 702 bur in the straight handpiece bore a 4-5 mm. hole in the model, corresponding to the distal surface of the second deciduous molar to be extracted. The horizontal arm leading from

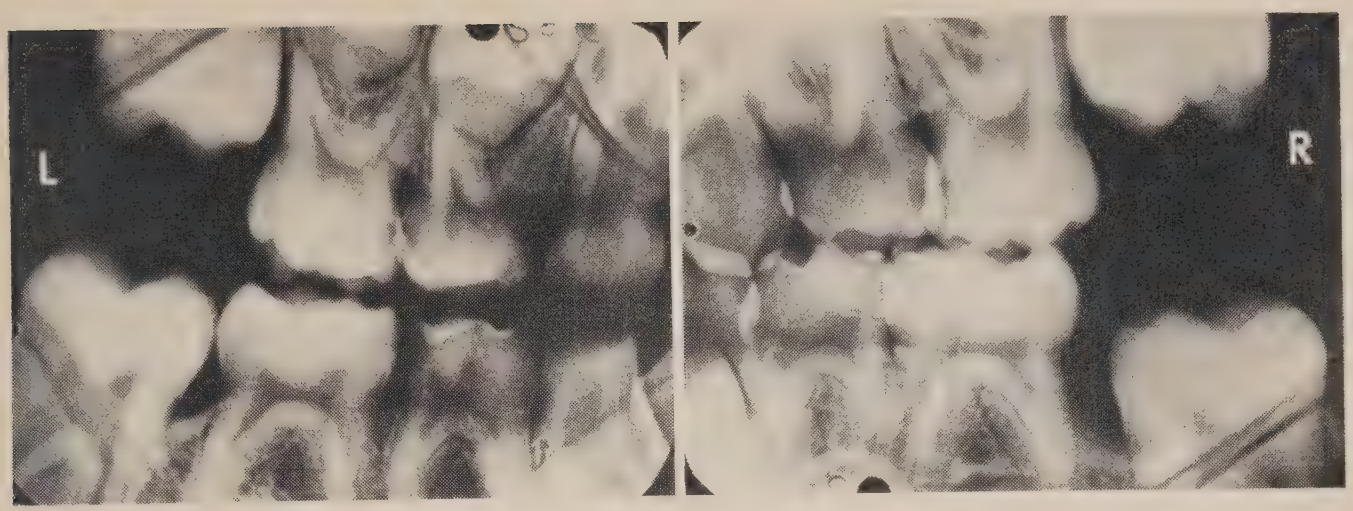


FIGURE 19

the abutment tooth must lie on the gingiva, free of the opposing teeth (Figure 5).

An intra-alveolar space maintainer should be constructed when premature loss of a second deciduous molar precedes eruption of the first permanent molar. The first deciduous molar serves as an abutment. Once the first permanent molar has fully erupted, that part of the vertical arm that extends below the gingiva is cut off with a sharp bur. In this way there is no need to remove the space maintainer. The appliance is left in the mouth until exfoliation of the abutment tooth. A removable appliance is substituted if the second bicuspid has not erupted by then.

In unilateral or bilateral multiple loss, the horizontal arms are cut off the space maintainer crowns covering the deciduous cuspids when the first permanent molars have erupted. An acrylic denture is then substituted. The fixed appliance must be left intact until the removable appliance is ready to be inserted. If the horizontal arm is cut off the space maintainer before the removable appliance is ready, and if chicken-pox or measles should intervene, space loss would result. The parents are shown how to care for such an appliance. They are also warned that adjustments will have to be made when the first bicuspids erupt. Loss of the denture is one of the bad features of removable appliances. But their function is so important that parents must be advised to guard against loss or breakage.

A T-bar space maintainer is not used when the second deciduous molar is lost after the first permanent molar has fully erupted, because of the risk of tipping of the permanent molar. A modified intra-alveolar arm with the vertical limb ending at the crest of the gingiva is preferable.

Past, present and future

Thirty years ago the popular slogan of the era was "Save the six-year molar." Preventive measures were consequently deferred until after eruption of this tooth. As a result premature loss of deciduous teeth in young children became very prevalent and there ensued much discussion about early loss of deciduous teeth as a cause of malocclusion. Little was said at that time about the relationship of genetics to malocclusion. But as years passed, we gradually learned that genetics and environment are equally significant in the development of malocclusion.

Today we are on the threshold of a new era of preventive measures which may in time eliminate the need for space maintainers except in cases of premature tooth loss due to accidents. Simultaneously, we will learn more about genetic influences on growth and on the develop-

ment of malocclusion. And we will encounter a public that is ever more alert to the needs of its children.

If orthodontists recognize these trends with an open mind, patients may be assured of the best possible service in line with ability to pay. But success can only be assured if the terms are fair to those that give the service as well as those receiving it. In this respect orthodontists must show the same understanding they displayed in the application of the basic sciences to their specialty. Their immediate task lies in devising methods that will give the best service to the most people while assuring orthodontists an income commensurate with time spent in postgraduate study.

SUMMARY

1. Some spaces close as a result of premature tooth loss, whereas other spaces do not.

2. A classification and guide are necessary to determine whether a space maintainer is required.

3. Growth, function, hygiene, comfort and durability are of prime importance in designing a space maintainer.

Notwithstanding the mechanical appliances here described, the best way to maintain space throughout the mixed dentition period is by retention of healthy deciduous teeth until normal exfoliation ensues. This can only be accomplished by a preventive approach to dental practice.

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3050 Yonge Street

Propoxyphene Withdrawn from Narcotic Listing

The federal government has amended the Narcotic Control Act and the Food and Drugs Act, thereby removing the drug propoxyphene (4-dimethylamino-3-methyl-1, 2-diphenyl-2-butanol propionate) from narcotic classification. Propoxyphene can henceforth be ordered on a regular prescription basis.

Management of wounds of the face

H. G. Green, D.D.S., Bethesda, Maryland*

Early care greatly enhances the capacity to heal facial injuries. A thorough examination should be performed as soon after the injury as possible. All foreign bodies should be removed, but excision of tissue must be kept to a minimum. Fractured facial bones, when exposed, should first be replaced in their normal position and then immobilized, after which the soft tissues should be repaired. Asepsis, haemostasis, gentle handling, use of correct suture materials and the avoidance of dead spaces aid soft tissue repair.

Les traitements précoces aident dans le maniement des blessures sérieuses de la figure. Il faut donc faire un examen complet dès après l'accident. Le chirurgien doit d'abord nettoyer les blessures de la face; les corps étrangers doivent être enlevés. Mais le chirurgien doit se garder, à ce stage, d'inciser beaucoup de tissus. Il doit remettre en place et immobiliser les os de la face qui ont été dénudés au cours des fractures; après quoi, il doit s'occuper des tissus mous. La réussite des interventions sur les tissus mous exige une aseptie rigoureuse, une hémostase soignée, une manipulation délicate et l'emploi de matériel à suture approprié; il faut de plus éviter de créer des zônes sans circulation.

The treatment of facial wounds has as its objective the restoration of normal contour and function to the injured structures. The skill with which initial treatment is rendered may well determine the attainment of this objective.

The benefits of the team approach to total patient care should be emphasized. The effects of the total injury to the patient are treated first, and then the lesser injuries are cared for, in the order

The opinions contained herein are not to be construed as official or reflecting the views of the U.S. Navy Department.

*Captain, Dental Corps, U.S. Navy; Head, Oral Surgery Department, U.S. Naval Dental School, National Naval Medical Centre.

of their importance, by the members of the team who have consulted on the patient's total condition and the manner in which he is to be restored to normal health. Major bodily injuries and intracranial damage occur concomitantly with facial wounds in a high percentage of cases and require the services of the surgical and allied specialties.

Severe facial wounds create the same problems in treatment as other injuries; that is, management of life-threatening emergencies, relief of pain, prevention of infection, and maintenance of the fluid balance and adequate nutrition. The present discussion, however, will be limited to the surgical treatment of facial wounds.

General care of facial wounds

Successful treatment of severe facial wounds depends on proper early care, which, in turn, is contingent on correct diagnosis and a well-conceived and well-executed plan of treatment. The hurried reduction of facial fractures may produce poor function, and the hasty repair of wounds may give poor cosmetic results. Usually, both the hard and soft tissues are seriously affected; trauma to the face, however, sometimes produces extensive fractures with only contusion of the overlying tissues. Therefore the possibility of bone damage must always be considered when the patient is examined, and final determination of the diagnosis and plan of treatment should be delayed until radiographs of the facial bones and the dental arches have been obtained.

Although radiographs are indispensable for diagnosis, they cannot be relied upon to delineate the full extent of injury; and an early clinical examination, before ecchymosis and swelling have developed, is essential. The examination should include a search for fractures, intra-oral lacerations, obstructions in the nasal cavity and tears in the nasal mucosa, injury to the conjunctiva, damage to the parotid gland and duct, and dysfunction of the seventh nerve.[1]

The definitive care of facial injuries must await its turn in the priority of treatment, but long delays are seldom necessary. As much as possible should be done at the first operation, not only to obtain the best results in healing, but to prevent psychic trauma to the patient. With conservative debridement and immediate closure followed by adequate antibiotic therapy, most facial wounds heal quickly and scarring is minimal. Primary care of facial wounds should be accomplished within 12 hours after the injury occurs, and reduction of fractures should never be delayed beyond 10 days because fibrous union of bone may make it impossible to achieve accurate reduction. Morale is much higher if severe wounds are closed early and the patient does not have to submit to unnatural methods of feeding and painful changes of dressings.

Preliminary to treatment, the wound and the area around it must be carefully cleansed. After the wound itself has been covered with a sterile dressing, the surrounding skin is washed thoroughly with a surgical detergent or an antiseptic skin cleanser. In most cases, local anaesthesia by infiltration may be employed, and dental syringes with carpules and disposable needles are very useful for administering the solution. When anaesthesia has been obtained, the area around the wound is again sponged carefully, after which the wound is cleansed. If possible, aseptic conditions are maintained in carrying out this procedure, with gowns, gloves, and masks being worn. The dressing covering the wound is removed, and the wound is washed and irrigated. Any non-irritating material, such as plain soap or one of the detergents, may be used; or the wound may be irrigated copiously with an isotonic solution of sodium chloride. The entire procedure is carried out gently, except that when the wound is badly contaminated, it must be scrubbed vigorously with a brush to cleanse the skin completely. Any material containing carbon particles will tattoo the tissues, and these areas of discoloration are dif-

ficult or impossible to remove at a later date. A careful search is made to find and remove all foreign substances, such as cloth, wood, or glass, that may cause infection or foreign body reaction.

Because of their abundant blood supply, the tissues of the face are easily regenerated and highly resistant to infection. Therefore, extensive excision is unnecessary. Only necrotic and obviously devitalized tissue should be removed.

It is not usually necessary to use complex closure methods. However, elevated soft tissue flaps may be employed where their use is indicated; or free full-thickness grafts may be applied if the primary loss of skin exceeds the loss of deep tissue and oral mucosa. When a great deal of tissue has been lost, closure of skin to mucosa is of great benefit in later reconstructive surgery.

Treatment of facial fractures

Fractures of the facial bones should receive definitive treatment as soon as circumstances permit, but not until there has been time to determine the method of treatment that will restore normal function and contour insofar as this is possible. In any plan of treatment, the facial bones must be considered as a structural unit, and the fractures cared for together and not as though they were a collection of unrelated defects.

Fractured bones that are exposed through soft tissue wounds should be returned to their normal position with sufficient fixation, such as direct interosseous wiring, to maintain the normal position of the fragments against the elasticity of soft tissues and the pull of gravity and muscles.

The dental occlusion is of great importance in the consideration of facial fractures and their treatment. Nearly every fracture that results in displacement of bone fragments also causes a malocclusion; and unless the normal relationship of the teeth is restored, the fragments cannot be replaced in their former position. The occlusion of the teeth is the best guide for determining the correct position of the fragments.[2]

Fractures of the Lower Face. — When fractures occur in the lower portion of the face, wiring the mandibular teeth to the stable maxillary arch will usually reduce and immobilize the mandibular fragments in their correct position. Wiring forms the basis of treatment in a large proportion of fractures of the jaws and may be the only treatment necessary in undisplaced fractures. If the arches are edentulous, more complex treatment methods may be required, such as splinting, open reduction and direct interosseous wiring, circumferential wiring of the mandible, or fixation to the lateral wall of the piriform aperture.

When mandibular fractures are compounded into the mouth, as frequently happens, the risk of infection is constant. Usually teeth in the fracture line should be extracted, unless they are to be used in splinting fragments of bone. After fibrous union has developed, it may be possible to remove the tooth without risking loss of position.

If there has been any loss of mandibular bone, the continuity of the mandible must be restored as soon as healing of the soft tissues permits; and the dental occlusion must be accurately maintained. An iliac or costal bone graft will provide effective splinting for any mobile or edentulous fragments.[3]

Fractures of the Middle Face. — Severe injuries to the middle portion of the face present many problems. They are frequently accompanied by skull fracture and brain damage, which, if present, must receive priority in treatment. Trauma of sufficient intensity may result in a craniofacial fracture-dislocation in which the fractured bones suffer a downward and backward separation from the skull or from the other bones of the face. If the bones of the skull are involved, early reduction should be undertaken in order to restore the fractured bones to their cranial base and thereby prevent tearing of

the meninges with accompanying loss of cerebrospinal fluid and possible danger of infection.[3]

Fracture-dislocation of the facial bones may result in elongation of the face and malocclusion of the teeth. In these fractures, just as in fractures of the mandible, the teeth must be interdigitated for correct positioning of the fragments. In addition, the loose lower fragments must be attached to the sound structures above. Ideally, this is accomplished by internal suspension wiring. For example, the fractured mandible is attached to the maxilla, and the fractured maxilla, in turn, is attached to the infra-orbital rim or the zygomatic process of the frontal bone, with closure of the frontozygomatic suture at the same time.

Next to the mandible and the nasal bones, the zygomatic bone is the facial bone most often involved in fracture-dislocation. Untreated fractures of the zygomatic bone may result in facial deformity; or they may cause persistent diplopia if the orbital floor is damaged.[1,4] Fracture-dislocation of the zygomatic bone may not directly cause a disturbance of the dental occlusion; but the maxilla is sometimes involved, and the reduction of these fracture-dislocations may be influenced by the action of the masseter and other facial muscles attached to these bones. Therefore, it is frequently necessary not only to employ direct interosseus wiring at suitable locations but also to interdigitate the teeth in order to immobilize the fragments.

When the floor of the orbit is comminuted and cannot be reduced, the maxillary sinus should be packed, and direct interosseous wiring employed when its use is indicated.

There are many methods of treating fractures of the middle portion of the face, but essentially they are all variations of the open or the closed method. Whichever method is employed, it should ensure that the displaced bones are returned to their normal position and fixed there for an adequate time. Early reduction is desirable because delay may make it virtually impossible to return the bones to their original position.

Soft tissue repair

Following debridement and the repair of fractures, the wound is irrigated. The patient is then prepared again; and the surgeon changes his gown and gloves before closing the wound with clean instruments.

Successful soft tissue repair depends upon asepsis, careful haemostasis, atraumatic handling of tissue, and accurate closure of tissue by layers.[5]

Suture material should be of the finest gauge that will ensure firm closure of the wound. It is advisable to use absorbable sutures if closure has been delayed for 12 hours or more, or if unavoidable contamination is present.

Haemorrhage and breakdown of the wound due to vascular injury may be prevented if the vessels are adequately ligated. Provision for deep drainage is made to prevent an accumulation of fluids that could lead to necrosis and cause breakdown of the wound by adding to tension on the margins.[6]

All dead spaces within the soft tissues should be obliterated by means of fine sutures. Otherwise, these spaces will have to fill in by granulation and healing will be delayed. Reapproximation of the margins of the superficial wound will reduce tension upon surface sutures and make it possible to remove them sooner. Skin sutures should be closely spaced and extended no more than one to two millimetres from the margins of the wound. They should be placed parallel to prevent buckling of skin and drawn no tighter than is necessary for approximation[7] and slight evulsion of the skin margins. It is preferable to follow normal cutaneous tension lines when the margins of the wound are outlined.

Sometimes a superficial facial laceration produces a V-shaped or U-shaped flap of loose tissue. It may be difficult to prevent scarring because the flap tends to shrink,

whereas the underlying tissue tends to expand. Even when great care is used in approximating the margins, secondary repair may be required. There should be adequate undermining of the skin layer when the wound is closed, and skin sutures should not be placed in avascular areas such as the tip of the V. It is advisable to freshen the edges so that a straight, linear scar forms.

In lacerations involving the lip, the deeper tissues should be closed by layers, the orbicularis oris muscle being approximated separately. Stay sutures must be placed deep, that is, close to the oral surface, so that tension is on the mucosa and not on the skin. The most important aesthetic consideration is matching the vermilion border. When the wound is large, some external type of bandage may be needed postoperatively to relieve tension on the lip. When the lip has been punctured, usually by the teeth, the only treatment required is a thorough cleansing with hydrogen peroxide. However, radiographs may be needed to ascertain whether metallic restorations or fractured teeth are embedded in the tissues.

Small intra-oral lacerations may require only cleansing, but larger wounds should be sutured to prevent food debris from lodging in them. The tongue may enter a gaping wound and keep it open. If bleeding is profuse, haemostasis must be established. When bone is exposed, the mucoperiosteum should be repositioned correctly, especially in wounds involving the palate, which might result in oral-nasal-antral communication.

When lacerations of the cheek extend into the mouth, the oral laceration should be closed before the muscle and the skin are sutured. Because of the small size of the facial nerve, its branches should be repaired immediately when injured. Injuries to the capsule of the parotid gland should be closed and drained into the oral cavity when possible. Injuries to the parotid duct are repaired by suturing over a probe, permitting drainage into the mouth.

In lacerations of the ear and nose, repair of the tissues by layers is often difficult, but if corresponding points are approximated first, good results can be obtained. It is seldom necessary to splint the nose; however, a large, firm dressing should be placed over the ear to prevent a haematoma from developing.

Postoperative Care.—After closure of the skin, the suture lines should be covered with a fine-mesh ointment gauze, nylon, or parachute silk. A firm but resilient pressure dressing must be used to reduce oedema, to prevent additional bleeding, and to help provide immobilization. Skin sutures may be removed within two to three days but in not more than five days. If the wound has been deep, collodion gauze or adhesive tape should be placed across the line of closure for two to three weeks following removal of the sutures to immobilize and splint the wound.

Summary

In the management of any injury it is essential that the initial evaluation and treatment of the patient be directed toward the effects of the total injury, and life-threatening emergencies cared for. Total patient care may well require the services of the surgical and allied specialties. The team approach to the care of facial wounds is of the utmost value and the only way that adequate treatment planning can be accomplished.

The successful treatment of severe facial wounds depends directly on proper early care and correct diagnosis. Therefore, a thorough examination should be performed as soon after the injury as possible. A radiographic examination is of distinct value to the surgeon in making the diagnosis and performing the necessary operation because usually the hard and soft tissues are seriously affected.

Careful cleansing of facial wounds is a primary essential in their treatment. All foreign bodies should be removed, but excision of tissue must be kept to a minimum. Fractured facial bones, when exposed, should first be replaced in their

normal position and then immobilized, after which the soft tissues should be repaired. Successful soft tissue repair is dependent on asepsis, careful haemostasis, gentleness in handling tissue, use of correct suture materials, and avoidance of dead spaces. Early care of these cases, and the observance of general surgical principles will greatly enhance the healing capacity of the body to replace the continuity of the injured parts and will enable the patient to resume his rightful place in society.

Résumé

Il est essentiel que, dans le traitement des blessures, leur évaluation et leur maniement soient guidés par leur répercussion possible sur l'organisme en général et que le thérapeute s'occupe d'abord des lésions qui peuvent mettre en danger la vie du blessé. Le bien général du malade exige qu'on fasse appel à la chirurgie et aux spécialités connexes. Le soin des blessures de la face requiert la participation de plusieurs spécialistes. C'est la seule façon d'établir un plan de traitement adéquat.

Le succès du traitement des lésions sérieuses de la figure repose directement sur des soins appropriés, prodigués aussitôt que possible après l'accident et sur un diagnostic précis. Il faut donc faire un examen complet dès après l'accident. Le chirurgien a besoin de la radiographie pour poser son diagnostic et guider son intervention, car, habituellement, les tissus durs et les tissus mous sont atteints.

Le chirurgien doit d'abord nettoyer les blessures de la face (les corps étrangers doivent être enlevés), mais il doit se garder, à ce stage, d'inciser beaucoup de tissus. Il doit remettre en place et immobiliser les os de la face qui ont été dénudés au cours des fractures; après quoi, il doit s'occuper des tissus mous. La réussite des interventions sur les tissus mous exige une aseptie rigoureuse, une hémostase soignée, une manipulation délicate et l'emploi de matériel à suture approprié; il faut de plus éviter de créer des zônes sans circulation. Les traitements précoces et l'observance des principes généraux de la chirurgie aident l'organisme à rétablir la continuité entre ses diverses parties et à remettre en circulation un patient qui peut reprendre sa place dans la société.

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F. J. Marshall, D.M.D., M.S., D. Lane, B.F.A.*
and A. Domokos, Winnipeg, Manitoba

Endodontic surgery: criteria, indications and procedures

Surgical treatment for the pulpless tooth with a periapical lesion ranges from drainage, curettage, apicoectomy to apicoectomy with retrograde filling. A history of rheumatic heart disease, rheumatic fever, congenital heart defects, diabetes, bleeding, allergy, slow healing or existing systemic therapy may modify surgical procedures without necessarily contra-indicating this form of endodontic therapy. Prophylactic antibiotic therapy is indicated in patients with heart disease or rheumatic fever. Selection of the appropriate surgical procedure is governed by mechanical problems, unsuccessful results of previous endodontic treatment, periodontal considerations, treatment time available, predictability of healing, and possible need for a biopsy specimen. It is important to obtain a good apical seal. Conservative surgical procedures are preferable. Rubber dam drains are preferable to curettage, and curettage is preferable to apicoectomy. Good access and proper flap design reduce trauma and enhance healing. There are few indications for apicoectomy. This procedure may cause unnecessary loss of periodontal support.

*Associate professor, Endodontology and Oral Histology, Faculty of Dentistry, University of Manitoba, Winnipeg.

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La chirurgie intervient de différentes façons pour traiter une dent atteinte de lésion péri-apicale: drainage, curettage, apectomie et apectomie combinée avec l'obturation du canal par l'apex. Cette façon chirurgicale de compléter le traitement d'endodontie peut être modifiée — sans nécessairement qu'elle soit condamnée — selon que l'histoire médicale du patient révèle que le patient a souffert ou souffre de maladie rhumatismale du coeur, de fièvre rhumatismale, de déformation cardiaque congénitale, de diabète, de dyscrasie sanguine, d'allergie, de guérison lente ou qu'il prend des médicaments particuliers. Les patients qui souffrent de maladie de coeur ou de fièvre rhumatismale doivent recevoir une médication prophylactique d'antibiotiques. On choisit la technique en se basant sur les problèmes mécaniques présents, sur les insuccès d'un traitement antérieur d'endodontie, sur les complications périodontiques, sur le temps disponible pour le traitement, sur les prévisions de la guérison et sur la nécessité de prélever une biopsie. Il est important d'obtenir un scellement apical parfait. Il faut préférer les méthodes chirurgicales conservatrices. Il faut préférer le drainage avec un morceau de digue en caoutchouc au curettage et le curettage à l'apectomie. Le traumatisme est moindre et la guérison plus rapide si on se crée un bon accès et

A. BASIC CRITERIA FOR TREATMENT SELECTION

1. Which tooth is to be treated?
2. Can it be treated (must it be extracted)?
3. Should it be treated (has it a functional or aesthetic value)?

B. TREATMENT PRIORITY

1. Control pain by analgesics and/or sedatives.
2. Prevent pain by sedating carious lesions with zinc oxide-eugenol.
3. Treat soft tissue disease (pulp, periapical or gingival tissues).
4. Treat hard tissue disease (caries).
5. Elective procedures (appliance, preventive measures).

C. DIAGNOSIS OF TOOTHACHE

1. Exposed dentine.
2. Reversible pulp pain.
3. Pulpitis.
4. Necrotic pulp.
5. Apical abscess.

D. TREATMENT PLANNING

1. Case history.
2. Examination.
3. Diagnosis.
4. Treatment selection.
5. Treatment priority.

E. CASE HISTORY

1. Chief complaint.
2. Past dental history.

si le lambeau a été bien conçu. Rares sont les cas qui nécessitent l'apectomie; cette façon de faire occasionne une perte inutile de support périodontique.

Surgical procedures greatly extend the scope of endodontic treatment and help to retain many pulpless teeth previously considered untreatable. Surgical treatment is most frequently used when treating pulpless teeth with periapical lesions. Incision for drainage, curettage, apicoectomy, and apicoectomy with retrograde apical fillings are the more common surgical procedures used in the treatment of periapical lesions. Less commonly practised are immediate root filling with periapical curettage, replantation,[1] apical splinting,[2] and root resection.[3]

Inclusion of surgical procedures in the treatment of pulpless teeth does not change the basic criteria (A) and priorities (B) for patient selection or treatment planning.

The affected tooth must have functional or aesthetic value in order to merit treatment. Consideration of surgery dictates utmost precision in the diagnosis of 'tooth

3. Medical history. Treatment modifiers: heart disease, rheumatic fever, bleeding diatheses, systemic debility, drug allergy, existing therapy.

F. CONTROL OF INFECTION

Systemic therapy — usually with antibiotics, specifically penicillin — is the method of choice.

1. Is there a history of allergy or drug sensitivity?
2. Culture for bacterial sensitivity to drugs.
3. Prescribe adequate dose of selected drug for a specific period.
4. Prescribe prophylactic penicillin only for congenital heart disease or conditions predisposing to subacute bacterial endocarditis.
5. Penicillin is the drug of first choice.
6. Emergency treatments are available, understood and practised.

Antibiotic therapy supports the patient's defences against pathogens. It is not intended for the dentist's peace of mind.

G. EXAMINATION

1. Visual: for facial symmetry, tooth and skin colour.
2. Touch: for soreness, tooth mobility, and intra-oral symmetry.
3. Instruments: percussion for periodontitis; pocket probe for sulcus depth and fistulae; explorer for pulp exposures; thermal tests for severity and duration of pain; vitalometer for pulp vitality determination. *These are comparison tests.*
4. Radiograph.
5. Special: anaesthesia; test cavity; aspiration, transillumination.

H. INDICATIONS AND CONTRA-INDICATIONS FOR ENDODONTIC SURGERY

For:	Not for:
Control	Bleeding diatheses
Complications	Poor access
Casualties	Poor healing
Convenience	Contra-indicated root canal therapy

ache' (C) and attention to the details of treatment planning.

Treatment planning (D) must, in turn, be based on an adequate case history. For although there are few contra-indications for endodontic therapy within the root canal,[4,5] there may be specific contra-indications for periapical surgical procedures. The case history may also reveal a need for pre-operative or postoperative supportive therapy.

The justification for surgical intervention, the choice of alternative treatments, and the technical details of the proposed procedures should be carefully assessed before a treatment plan is devised. Not until a tentative treatment plan has been formulated can the patient be acquainted with his needs. The patient will then appreciate his personal responsibility and that of his dentist for ultimate success of the treatment. He will also be in a better position to elect a particular course of therapy.

Application of the case history

A case history (E) is most suitably recorded from direct questioning of the patient, but may also be obtained indirectly from a questionnaire that the

patient answers before seeing the dentist.[6] Direct questioning should include such leading questions as: "When did you last see your physician?" "Have you been sick recently?" "Have you ever been hospitalized?" "Do you feel well now?" "Are you taking any medicine or pills?" A positive answer to any question will prompt further particular enquiry.

These questions and the treatment modifiers listed in (E) are particularly pertinent because pulpless teeth are still suspected by some as foci of infection and health hazards.[7] However, case histories that support these suspicions are rare. Poorly treated teeth and unfilled canals provide the more usual explanation.

Several recent reports indicate that 80-90 per cent of periapical lesions heal in response to non-surgical endodontic treatment.[4,5] Other reports, describing the low incidence of bacteraemia following correctly applied non-surgical treatment, support this view.[8]

There is no reason why surgical endodontic treatment should increase the risk of subsequent focal infection. In fact, surgical techniques may very well have the opposite effect. Endodontic surgery probably is no more hazardous for most patients than a difficult extraction.

Surgical endodontic treatment in the presence of certain systemic conditions does, however, create a health hazard. Patients with a history of rheumatic heart disease, rheumatic fever or a congenital heart defect require special consideration and consultation with their physician. Prophylactic antibiotic therapy is mandatory for surgical treatment in patients where bacteria are liable to lodge on heart valve structures congenitally deformed or damaged by previous disease (F).[9] Bacterial endocarditis, though no longer a common disease, reduces life expectancy and may have a fatal outcome. Surgical endodontic treatment may be considered for these patients as an alternative to extraction provided the affected tooth is periodontally sound and an absolute root canal seal can be guaranteed. Non-surgical endodontic treatment may also be considered if antibiotic prophylaxis accompanies each separate treatment. Intramuscular injection of penicillin is the prophylactic therapy of choice for both types of treatment.[9]

A history of diabetes may modify the treatment but does not contra-indicate surgery if the patient's insulin metabolism is well controlled.[10] Although healing is sometimes a problem and infections may occur more readily in these patients, surgical endodontic treatment should be no more of a problem than the alternative of extraction. Antibiotic prophylaxis (F) and other supportive therapy can be introduced when and as required. These patients require adequate pre-surgical sedation for the control of stress. Some diabetic patients may release endogenous adrenalin while under stress, mobilizing glucose and thus producing diabetic coma. Accidental intravenous or intra-arterial injection of a local anaesthetic solution with adrenalin may also produce this reaction.

Other debilitating diseases influence the choice of treatment in a like manner. The pertinent questions in each case are: (1) would endodontic surgery be more or less traumatic than extraction; (2) would healing be significantly different following the one treatment or the other.

A history of bleeding and poor healing, substantiated by clinical tests, usually contra-indicates surgical endodontic treatment as well as extraction. Root canal treatment without surgery is the method of choice in such cases. This is followed by a period of observation to ascertain whether healing occurs. Surgical endodontic treatment is contra-indicated in patients with major blood dyscrasias,[11] such as haemophilia, as well as patients receiving anticoagulants.

A history of allergy does not necessarily contra-indicate surgical endodontic therapy. Antibiotics are the most serious allergenic agents used in dentistry. Like local anaesthetic solutions that produce less serious reactions, these drugs can usually be replaced by a similar non-allergenic drug.

Patients receiving corticosteroids are often a source of concern to the dentist. Prophylactic antibiotic therapy is not routinely advocated in these patients unless all possible infections can be combatted. These patients are quite susceptible to tuberculosis; yet, prophylactic administration of anti-tubercular drugs is seldom considered necessary. The risk of overgrowth by bacteria insensitive to the particular antibiotic (superinfection) and of drug sensitivity seems to be greater than the low hazard of postoperative infections. A pre-operative sedative for the control of stress is, however, indicated for these patients.[12]

Actually there may be a greater need for ascorbic acid than for antibiotics in patients who undergo surgical endodontic therapy. There is increasing evidence that large doses of ascorbic acid enhance the rate of healing, particularly in the elderly and the debilitated.[13]

Examination findings (G) may suggest a need for supportive therapy even though the case history is normal. Malaise, lymphadenopathy, pyrexia or extensive facial swelling may indicate a requirement for systemic antibiotic therapy. Patients suffering anxiety and pain may require pre-operative sedatives and/or analgesics.

A good case history enables the practitioner to render the best treatment possible under given circumstances. The secret of recording this history is to let the patient talk. Know and understand the patient's problems before they become your problems.

Indications for surgery

The mere presence of a periapical lesion does not necessarily warrant surgical treatment, particularly when non-surgical root canal treatment results in the successful resolution of so many of these lesions.[4,5,14] Other considerations (H) govern the acceptance or rejection of surgical therapy, even when the only alternative treatment is extraction.

Mechanical Difficulties.—Apicoectomy is indicated when mechanical difficulties preclude absolute obturation of the root canal. Anatomical features, such as extreme apical curvatures, flaring apical canals, pulp stones, calcified canals, or lateral canals may impede obturation. Similar difficulties are encountered in the presence of broken instruments and canal wall perforations.

Existing Unsuccessful Treatment. — Apicoectomy with retrograde filling is indicated when a large periapical lesion is not reduced in size within six months of filling the root canal, when a periapical lesion develops after the root canal has been filled, or when pain persists during treatment or following root canal filling. Surgical drainage or apical curettage is indicated when persistent exudation into the root canal prevents drying and filling the canal properly. Persistent positive bacterial cultures may also be considered an indication. The failure of a fractured root to heal or of an over-filling to resolve are other indications for surgery.

The failure or success of treatment should not be based on premature judgement. The interval between postoperative examinations is important. Several authors have reported healing (radiographic evidence of resolution of lesions) that was only complete four years after root filling.[14] Conversely, some treatments that were judged successful after six months failed after four years. Most treatments, however, succeed or fail within the first two years after completion of therapy.[15]

Periodontal Problems. — Surgical treatment is indicated when apical lesions become involved or connected by fistulae with periodontal lesions. Both must be treated simultaneously.[16]

Time Available.—Surgical one-sitting root filling procedures are indicated when the restriction of the patient's or the practitioner's schedule does not permit regular, spaced treatment sessions.

Predictable Healing.—Surgical treatment is indicated for transient patients or those unable to return for re-examination to determine the success of healing. Healing is more readily predictable when an absolute apical seal is assured by direct vision, and when the pathological tissue has been completely removed and biopsied. Surgical treatment is indicated whenever a pulpless tooth has to be treated promptly.

Several authors have reported success with surgical treatment at a higher rate than is usually reported for non-surgical treatment.[17-19] There are no controlled studies, however, that compare the two types of treatment. Surgical therapy may be more successful only when limited to anterior single-rooted teeth.

Biopsy.—Surgery may be necessary to obtain tissue for biopsy when the radiographic and clinical findings are indecisive or when the patient has a genuine fear of cancer. The limited value of the radiograph is illustrated by recent studies which show that bone defects are not well defined radiographically unless they involve cortical bone.[20,21] This observation gives us the third dimension, of depth, for interpreting the size of bone lesions from radiographs. It also shows that radiographs are indefinite and unreliable in delineating absolutely a periapical bone lesion. Moreover, the diagnosis of soft tissue lesions cannot be made from a radiograph.[22] For these reasons all tissue removed during surgical treatment of periapical lesions should be examined histologically.[23]

Treatment procedures

Drainage.—Large periapical lesions (Figure 1) may be treated by inserting a rubber dam drain (Figure 2) through a mucosal incision into the bone cavity.[24] Heavy rubber dam is the material of choice. The incision and penetration of the cavity can usually be made with a scalpel and a No. 15 blade. Sometimes a bur or a chisel must be used, as well, to make a small opening through the bone overlying the cavity. All the necessary instruments and materials are available in most dental practices. Once placed, this drain is readily changed and maintained until the lesion heals or becomes too small to require further drainage. Unlike curettage, this procedure does not endanger the vitality of adjacent teeth, and causes only slight discomfort to the patient.

The same treatment is used when an acute abscess has localized and drainage is indicated. It is, of course, important to differentiate between a localized fluctuant swelling (containing pus), collateral oedema (swelling without pus), and cellulitis (a board-like swelling due to a spreading soft tissue infection). Only fluctuant swellings should be incised and local anaesthetic solutions should be deposited outside the involved area.

Most labial maxillary abscesses will subside following incision alone. But palatal abscesses may persist, unless drains are inserted and maintained, because the elastic palatal tissue will close off the incision before drainage, resolution and healing are complete. Mandibular incisions also require drains for complete healing. Hot salt water held in the mouth over the infected area will assist drainage. Heat, used to bring an abscess to point for incision and drainage, must not be applied externally lest the abscess should point externally on the face.

After an acute infection has subsided the rubber dam drain may be maintained to act as a 'safety valve' during the remaining root canal treatments. This does not seem to preclude culturing or filling procedures. For extended treatment, rubber dam drains are sometimes replaced by plastic cores.[25]

Surgical drainage is recommended as an alternative to curettage because of its lesser trauma, simplicity and success.

Curettage.—Apical curettage is preferable to apicoectomy. Maximum periodontal

support is thereby maintained. The results of non-surgical endodontic therapy (Figure 3) indicate that it is no longer routinely necessary to remove the apex for successful healing of periapical lesions.[4,5]

Successful curettage depends on adequate access to the involved area. Several different incisions (Figure 4) may be used to gain the access flap. The incision must be made over healthy intact bone and not over the surgical cavity. It must be adequately long. Long incisions heal as well as short incisions and provide better access. Good access improves visibility, reduces the operating time and the amount of trauma, and therefore promotes healing. Access to small lesions may be gained by a semi-lunar flap (Figure 4, incision 1). Large lesions require a straight line incision (Figure 4, incision 2) extended vertically at one end. A continuous gingival incision (Figure 4, incision 3) extended vertically at one or both ends is required for combined endodontic and periodontal treatment or when a fistula or scar tissue are present. In reflecting the tissue care should be taken to rest the retractors directly on bone and not to traumatize the soft tissue unduly.

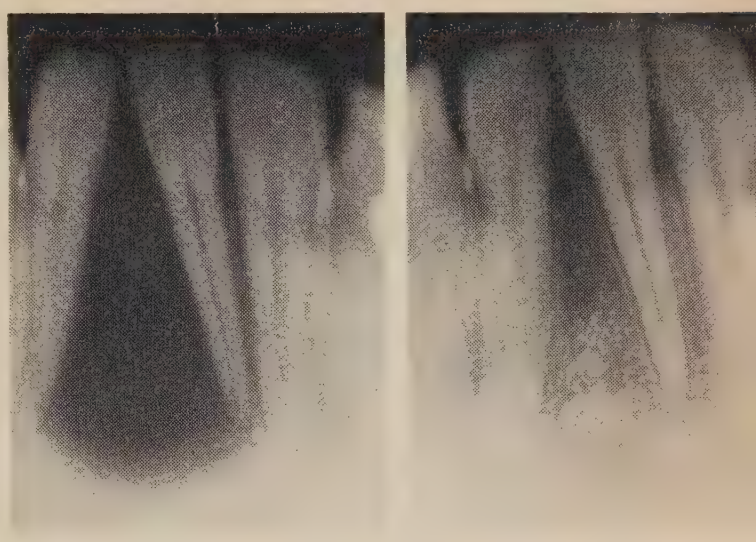

FIGURE 1 (l.) June 30, 1961: radiograph of large pe apical lesion prior to placement of rubber dam drain. Bo adjacent teeth are vital. (r.) December 12, 1961: radiogra taken three months after drainage was discontinued. (Ma shall and Walker, D. Digest 68:573, 1962.)

The armamentarium for curettage is more extensive than for drainage but the required instruments are those usually available for routine exodontia. A scalpel with a No. 15 blade, a periosteal elevator or a wax spatula, a No. 85 surgical curette or a large double-ended spoon excavator, and a suture set-up are necessary for a good basic kit.

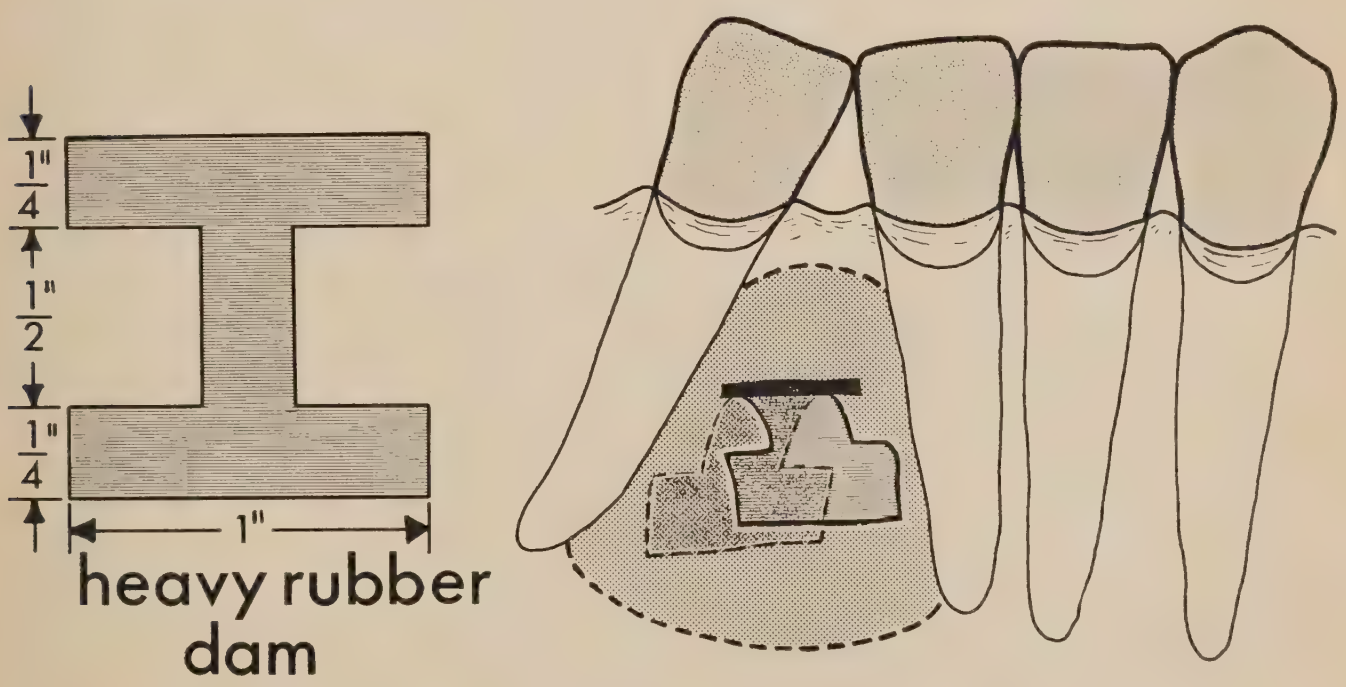

FIGURE 2 Directions for placing rubber dam drain as followed in case illustrated in Figure 1. (Marshall and Walker, D. Digest 68:573, 1962.)

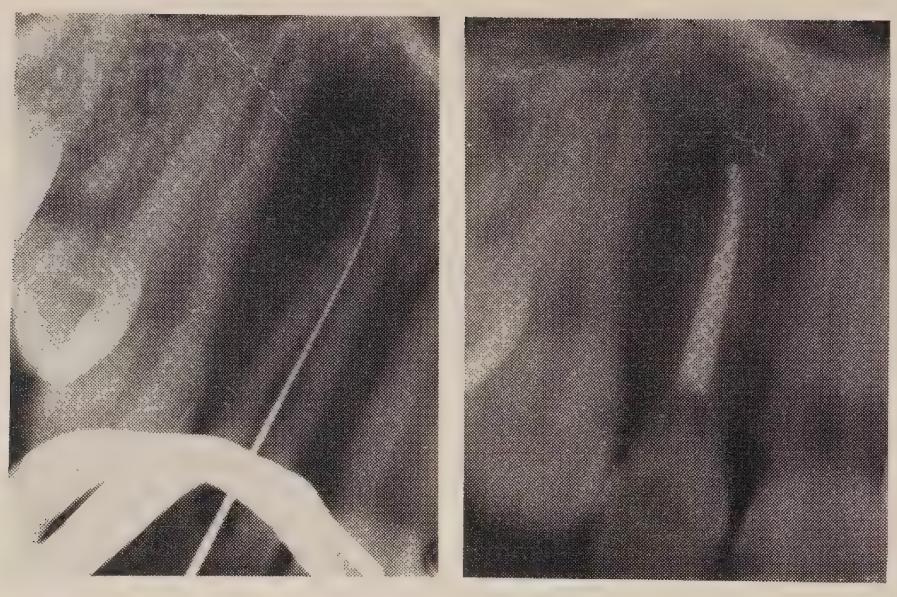

FIGURE 3 Radiographs of periapical lesion (l. November 16, 1962; r. September 3, 1963) which healed following non-surgical endodontic treatment.

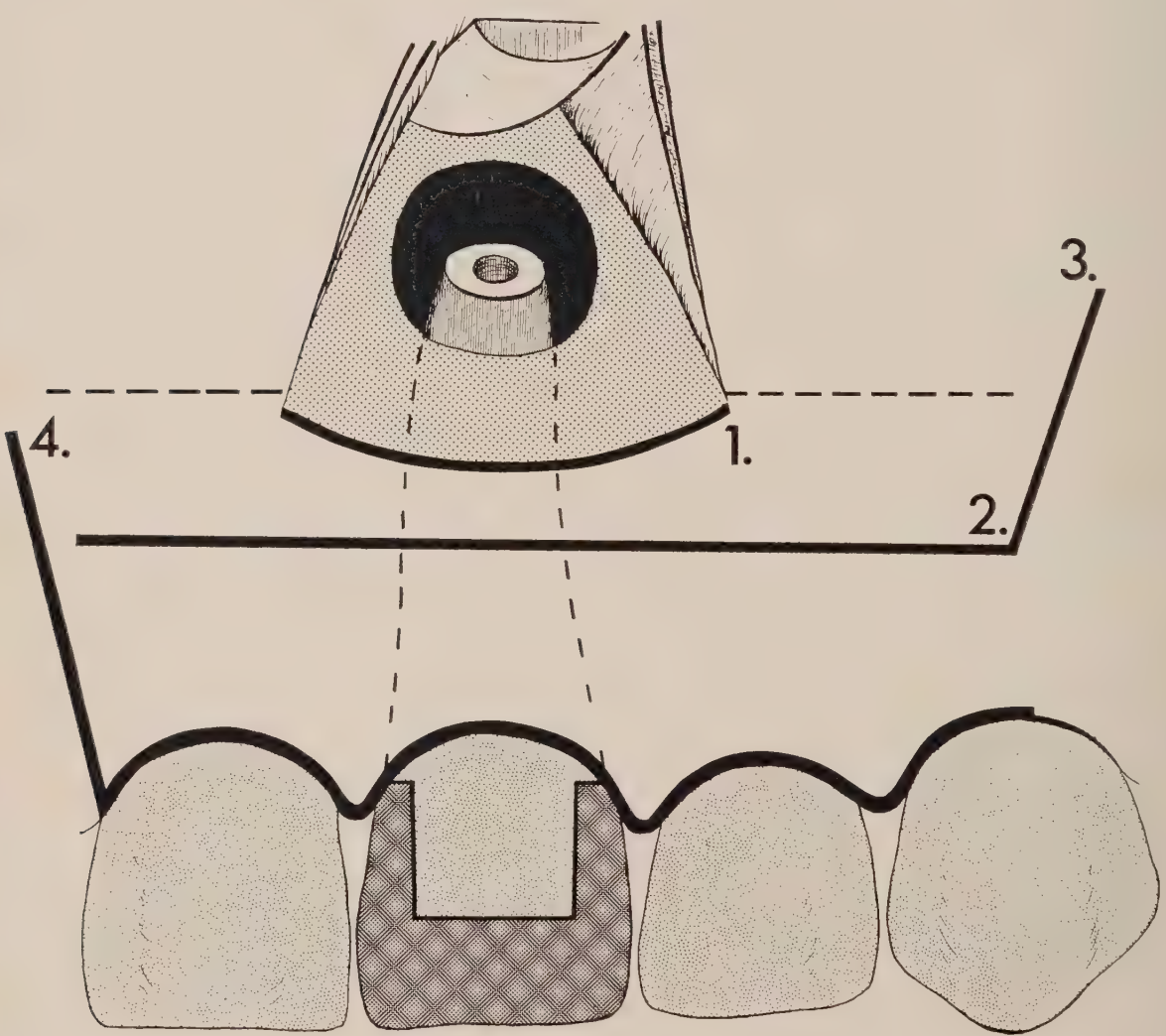

FIGURE 4 Outlines for access flaps used in surgical endodontic treatment. Note preparation of root apex for a retrograde amalgam filling.

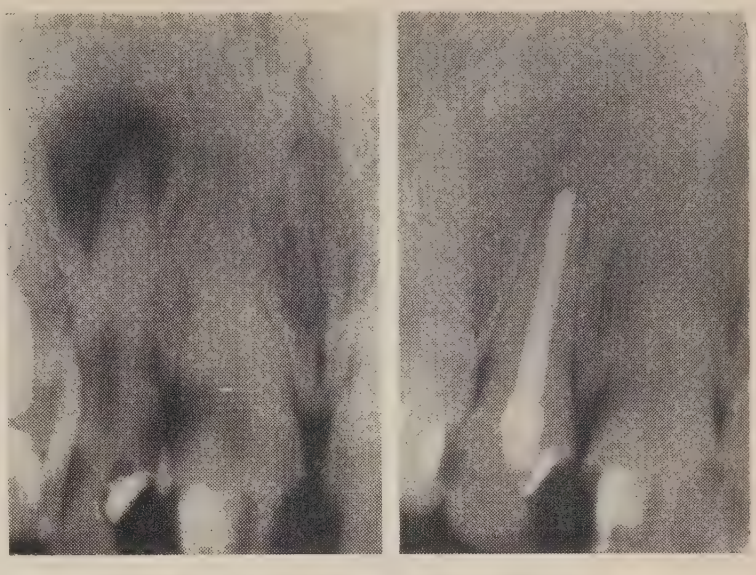

FIGURE 5 Radiographs of large periapical lesion (l. February 10, 1961; r. March 26, 1962) which was treated following a 'one-sitting' root filling and curettage. The biopsy specimen was described as a 'granuloma.'

When curettage is required to remove over-filling, only remove enough tissue to give access for sealing the apical filling with a hot instrument.

Total removal of all softened periapical tissue may be unnecessary if a specimen is obtained for biopsy and all necrotic material is removed. This applies particularly to lesions that involve or encroach on vital structures. Few periapical lesions are cystic or recurrent.[22] If granulation tissue is removed, it has to be reformed before healing and bone formation result.

The apical seal of the root filling should always be examined and resealed by burnishing with a warm instrument before the flap is closed and sutured to place.

Apicoectomy.—There are very few indications for routine apicoectomy. When extreme apical root curvature results in an unfilled canal, cut back the root until the filling is visible. Then reseal the canal. Do the same for apical perforations. Most root canal fillings fail due to faulty obturation.[4,26] When root amputation is required for access in curettage, remove only enough of the apex to obtain the required access. The use of extra long spoon excavators, commonly used for operative procedures, minimizes the amount of root to be removed. An exposed root that extends into the surgical cavity should not be amputated simply to promote healing. This bare root will re-attach periodontally and will continue to support the crown.

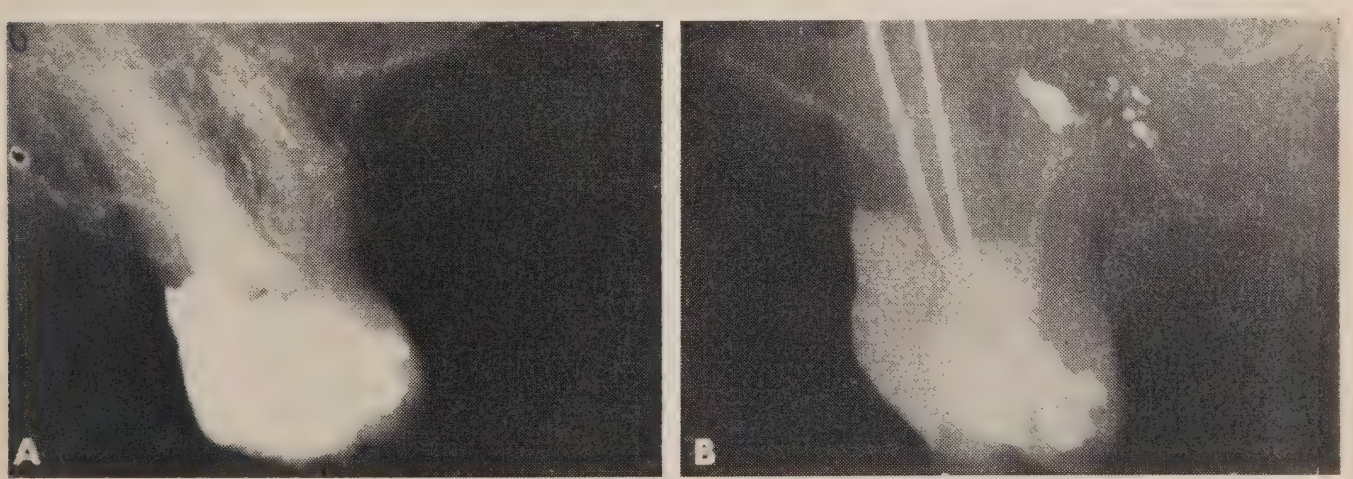

FIGURE 6 Retrograde amalgam filling placed following apicoectomy of the mesio-buccal root of a maxillary second molar. Note broken reamer which prevents obturation of the root canal.

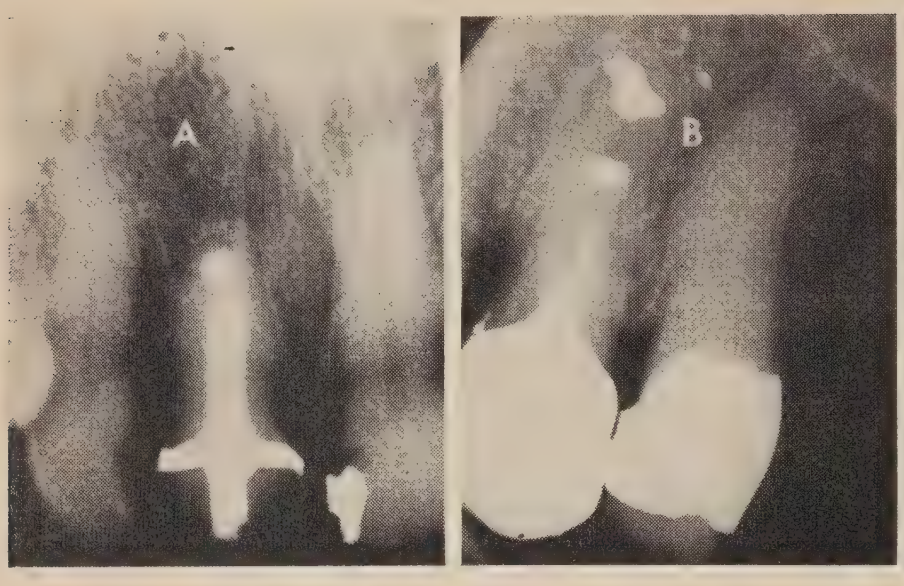

FIGURE 7 Two examples of successful surgical endodontic therapy (l.) 35 years and (r.) 36 years after treatment. Note intact appearance of space occupied by the periodontal membrane. (Courtesy of M. H. Garvin, Winnipeg.)

When phenol-sulphonic acid 'sterilization' is used in the 'one-sitting' root filling technique, it is advisable to remove a small piece of apex and at the same time curette the apical area (Figure 5). This prevents free acid from remaining in minute accessory foramina or in the periapical tissues where it delays healing.

Caustic solutions should not be used to 'sterilize' the surface of cut apical dentine. Any drug potent enough to sterilize would also damage healthy adjacent tissues.

The armamentarium is the same for apicoectomy as for curettage, except for the addition of surgical burs required for bone removal and root reduction. Straight handpiece carbide burs Nos. 702 and 558 are most suitable, and they should be used at medium high speed. An adequate coolant spray or stream of water must be used, and high velocity evacuation is required. A surgical aspirator is usually inadequate for this purpose. An air turbine handpiece and extra long F/G surgical burs may also be used if access permits.

Apicoectomy and Retrograde Filling. — This procedure is used to seal the apical portion of the root canal when coronal access to the canal is not possible. Broken instruments (Figure 6), perforated roots, post crowns, calcified canals and flaring apexes are indications for this procedure.

Successful healing in these cases requires a good seal at the apex. This depends on gaining proper access. Access must permit the use of burs or diamond stones for the preparation of a flat labial inclined surface (Figure 4) on the root end. For convenience this surface is approximately bevelled at an angle of 45° from the labial surface. Regardless of the angle, the unfilled canal or prepared cavity must be visualized or probed. Using small round or inverted cone burs, a cavity with undercuts is prepared so that the unfilled canal will be covered and sealed when the filling material is placed.

Amalgam is most commonly used for retrograde fillings.[17] Quick setting zinc oxide-eugenol cements may also be used.[28] A cement is more convenient to handle and seems to be sufficiently durable. The cement should be reinforced with plastic to decrease its solubility.[29]

The success of this procedure depends on a fine balance between removing enough of the apex for access and sealing and leaving enough root for periodontal support.

When reverse reaming and filling of the canal is possible, some dentists insert and cement silver points in the canal. Any method seems to work well

as long as the apical portion of the root canal is sealed.

Retrograde fillings have stood the test of time (Figure 7). They are a valuable adjunct to endodontic treatment. This procedure is similar to all other endodontic surgical procedures and the instruments and materials used are readily available.

Summary

Surgical treatment for the pulpless tooth with a periapical lesion ranges from drainage, curettage, apicoectomy to apicoectomy with retrograde filling. A history of rheumatic heart disease, rheumatic fever, congenital heart defects, diabetes, bleeding, allergy, slow healing or existing systemic therapy may modify surgical procedures without necessarily contra-indicating this form of endodontic therapy. Prophylactic antibiotic therapy is indicated in patients with heart disease or rheumatic fever. Selection of the appropriate surgical procedure is governed by mechanical problems, unsuccessful results of previous endodontic treatment, periodontal considerations, treatment time available, predictability of healing, and possible need for biopsy specimens. It is important to obtain a good apical seal. Conservative surgical procedures are preferable. Rubber dam drains are preferable to curettage, and curettage is preferable to apicoectomy. Good access and proper flap design reduce trauma and enhance healing. There are few indications for apicoectomy. This procedure may cause unnecessary loss of periodontal support.

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Faculty of Dentistry,
University of Manitoba

par Yvon Bergeron, D.D.S., M.S., Chicoutimi, P.Qué.

Corrélation entre les espaces interdentaires dans le diamètre mésio-distal des incisives inférieures

Aucune relation significative n'a pu être établie entre les espaces primaires et le diamètre mésio-distal des incisives inférieures temporaires ou permanentes. Aucune relation significative n'a pu être établie entre les espaces interdentaires dans la dentition temporaire et le diamètre mésio-distal des incisives permanentes inférieures. Il a cependant été démontré que les espaces interdentaires dans la dentition temporaire versus le diamètre mésio-distal des incisives temporaires inférieures peuvent fournir une indication sérieuse: un manque d'espace entre les incisives temporaires chez un sujet qui devrait normalement en avoir peut être un signe indicateur de problèmes d'espace futur.

▪

In this study, interdental spacing in the mixed dentition was not statistically related to the mesiodistal diameters of deciduous and permanent lower incisors. Nevertheless, a future malocclusion may be anticipated if there are no spaces between the lower deciduous incisors at a time when these teeth would ordinarily be spaced.

En principe, les dents devraient pouvoir prendre place sur les arcades de façon à satisfaire à la fois les normes de la fonction et de l'esthétique. En pratique, nous savons fort bien que tel n'est pas toujours le cas. Il existe en effet de nombreuses malocclusions dont le point d'origine est dû à des disproportions dentaires par rapport à l'os basal ou vice versa.

Plusieurs méthodes ont été mises au point qui permettent de prédire avec plus ou moins d'exactitude s'il y aura suffisamment d'espace sur les arcades pour accommoder toutes les dents permanentes. Mais comme l'écrivait Goldstein,[1] "le mécanisme dentaire en est un si délicat qu'un seul millimètre peut faire la différence entre une bonne ou une mauvaise occlusion."

Baume,[2] par ailleurs, a déjà démontré que "dans les cas où des espaces existent entre les dents temporaires, l'alignement des incisives permanentes respondantes est généralement bon, tandis que 40 pour cent des arcades sans espace produisent des dents antérieures qui se croisent."

Cet énoncé de Baume[2] laisse entrevoir plusieurs possibilités.

Une première entre autres consisterait en un rapport significatif entre la grosseur des dents temporaires et permanentes. Or, Lysell,[3] Northcroft[4] et Couture[5] s'accordent pour affirmer le contraire.

On ne peut pas non plus expliquer cet énoncé par un accroissement de la dis-

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la dentition temporaire et

temporaires et permanentes

tance entre les canines lors de l'éruption des permanentes, car Foster[6] et Siatczinski,[7] entre autres, ont démontré que non seulement cette distance n'augmente pas, mais qu'elle diminue.

La croissance intercanine et le rapport entre les incisives temporaires et permanentes étant éliminés, il pourrait peut-être s'agir d'une corrélation entre les espaces interdentaires dans la dentition temporaire et le diamètre mésio-distal des incisives temporaires et permanentes. C'est la vérification de cette dernière hypothèse qui constitue le but de cette étude. Pour ce faire, notre travail porte uniquement sur les incisives inférieures.

Méthodologie

Matériel. — Les mesures citées dans ce projet ont toutes été prises sur des spécimens appartenant au Centre de recherche orthodontique de Burlington, Université de Toronto.

La ville de Burlington elle-même, dont la population s'établit à environ 8,500 habitants, a fourni 80 à 90 pour cent des sujets étudiés. Cette petite ville située près du lac Ontario a été choisie parce qu'elle est exceptionnellement bien organisée au point de vue programme médico-dentaire et aussi parce que ses habitants jouissent d'un bon standard de vie.

Technique. — Des empreintes au Jeltrate ont été prises périodiquement sur les mêmes sujets aux âges de 6 et 9 ans. Des modèles de plâtre ont été préparés et mesurés par un orthodontiste. Les mesures ont été prises directement sur les modèles au moyen d'un vernier à coulisse, type Halios, à 0.1 mm., pour le diamètre mésio-distal des dents et, type Etalon, à 0.05 mm., pour les espaces interdentaires.

Comme diamètre mésio-distal, on a choisi la plus grande distance entre les surfaces proximales des couronnes, mesurée parallèlement au plan occlusal et perpendiculairement aux surfaces labiales.

Comme espace interdentaire, on a opté pour la plus grande distance séparant les surfaces proximales de dents avoisinantes, mesurée parallèlement au plan occlusal et perpendiculairement aux surfaces labiales.

Chaque dent et chaque espace ont été mesurés un à un. Dans quelques cas de dents absentes ou de carie, l'antimère a été utilisé pour les mesures dentaires. Pour les espaces, nous avons dû recourir au modèle précédent le plus récent.

Méthode statistique

La méthode du moindre carré a été utilisée dans cette étude, car des méthodes de statistique avancée ont prouvé que cette théorie donne les meilleurs résultats

dans un cas de régression linéaire $Y=aX+b$. En somme, la méthode du moindre carré a été utilisée pour déterminer les paramètres (a) et (b) de la régression linéaire. Les coefficients de régression obtenus constituent les vrais paramètres; ils sont les paramètres de nos groupes et il n'est pas nécessaire de les corriger par d'autres facteurs. Par cette méthode, la ligne est située dans la position d'où le carré des déviations (dans l'axe vertical) est plus petit et aussi d'où la moyenne des déviations de Y's est zéro. Nous n'avons donc qu'à prendre soin de l'étude d'une régression linéaire pour nos groupes; cette régression détermine les relations entre les espaces interdentaires dans la dentition temporaire au niveau des dents antérieures de la machoire inférieure et la grosseur des dents temporaires ou permanentes au même niveau.

$Y=aX+b$
X_1=dents temporaires
X_2=dents permanentes

(a) et (b) sont les coefficients de régression (paramètres) que nous avons dû déterminer pour nos groupes. Nous pouvons alors, dans un cas donné, dans lequel X est connu, trouver la valeur correspondante de Y, l'inconnu. La méthode du moindre carré nous permet de déterminer (a) et (b) et de les accepter comme connus, selon les formules suivantes:

$$a = \frac{\Sigma X \, \Sigma Y - n \, \Sigma XY}{\Sigma(X)^2 - n \, \Sigma X^2}$$

$$b = \frac{\Sigma X \, \Sigma XY - \Sigma Y \, \Sigma X^2}{\Sigma(X)^2 - n \, \Sigma X^2}$$

Ces deux formules nous permettent de trouver les paramètres de la relation suivante:

$$Y=aX+b$$

et cette dernière formule devient le facteur principal dans la détermination des corrélations qui nous intéressent.

Toutes nos données ont été analysées à l'aide d'un calculateur électronique du Centre de statistique et de calcul de l'Université de Montréal. Les graphiques ont été élaborés, d'une part, à partir des résultats statistiques pour les intervalles de confiance. Tous les intervalles de confiance ont été calculés à un niveau de 85 pour cent.

Résultats

Le but premier de cette étude consistait à évaluer la relation entre les espaces interdentaires dans la dentition temporaire et le diamètre mésio-distal des incisives inférieures temporaires et permanentes. Pour ce faire, on a fait une comparaison en six points.

1. Relation entre la somme des espaces primaires gauche et droit et le diamètre mésio-distal des incisives temporaires inférieures.

2. Relation entre la somme des espaces primaires gauche et droit et le diamètre mésio-distal des incisives permanentes inférieures.

3. Relation entre la somme de tous les espaces mesurés et le diamètre mésio-distal des incisives temporaires inférieures.

4. Relation entre la somme de tous les espaces mesurés et le diamètre mésio-distal des incisives permanentes inférieures.

5. Relation entre la somme de tous les espaces mesurés, moins les espaces primaires et le diamètre mésio-distal des incisives temporaires inférieures.

6. Relation entre la somme de tous les espaces mesurés, moins les espaces primaires, et le diamètre mésio-distal des incisives permanentes inférieures.

Etudes Nos 1 et 2: Relation entre la somme des espaces primaires gauche et droit et le diamètre mésio-distal des incisives inférieures temporaires ou permanentes.

Aucune relation statistiquement significative n'a pu être établie entre les variables présentes dans ces deux premières études.

Il semble que les espaces primaires n'ont pas de relation avec la grosseur des incisives inférieures temporaires ou permanentes. Les points expérimentaux placés sur graphiques dénotent une distribution tellement éparse que nous trouvons autant de points en dehors de l'intervalle de confiance qu'à l'intérieur. Le résultat le plus significatif a été trouvé chez les filles, au niveau des incisives temporaires (Figure 1).

Pourtant, cette figure qui est la plus significative démontre clairement le manque de cohésion des points expérimentaux. Voici les données correspondant à cette figure:

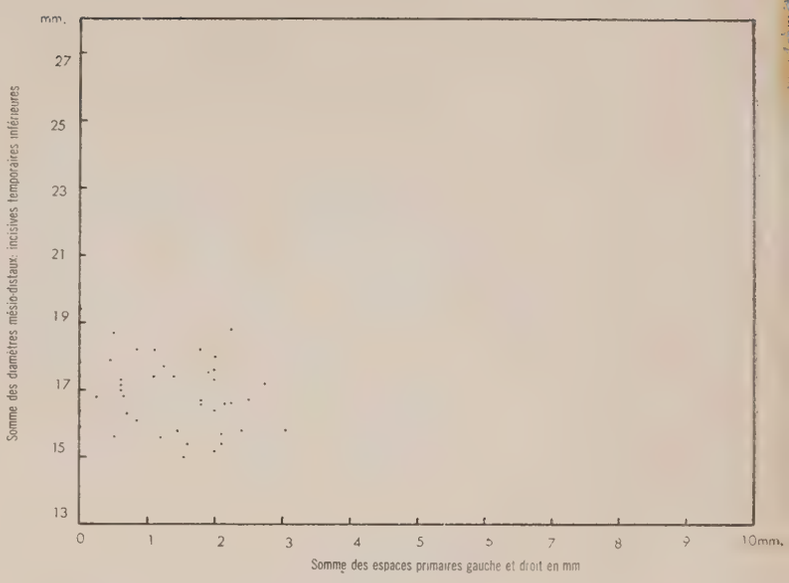


FIGURE 1 Filles: 43 cas.

Filles = 4.3

a = 0.266	S^2 = 1.01
b = 17.232	S_x = 0.880
$\overline{X}$ = 1.273	S_y = 1.024
$\overline{Y}$ = 16.893	Per = 5.26 pour cent

Per = Pourcentage de variabilité expliquée par la régression.

Etude No 3: Relation entre la somme de tous les espaces mesurés et le diamètre mésio-distal des incisives temporaires inférieures.

On ne peut pas considérer comme statistiquement significative la relation qui existe entre les variables étudiées ici, mais les résultats obtenus ne sont pas négligeables. Ils indiquent nettement une tendance positive. Cela implique que les points expérimentaux sont groupés d'une façon cohérente, que la pente des courbes relatives à l'intervalle de confiance est assez marquée pour qu'on puisse en tirer quelque chose, que le pourcentage de variabilité expliquée par la régression est assez élevé pour nous permettre certaines conclusions et que l'erreur type de S^2 estimé est d'un ordre considérablement inférieur à celle des autres études. La figure 2 représente ici le total des données. Il est à remarquer que les résultats statistiques sont deux fois plus significatifs chez les filles que chez les garçons.

Voici les données relatives à chacun des groupes:

(1) Filles 43 + Garçons 72; n = 115

a = −0.233	S^2 = 1.15
b = 17.999	S_x = 2.464
$\overline{X}$ = 4.162	S_y = 1.214
$\overline{Y}$ = 17.029	Per = 22.4 pour cent

(2) Filles 43

a = −0.254	S^2 = 0.687
b = 17.892	S_x = 2.414
$\overline{X}$ = 3.934	S_y = 16.893
$\overline{Y}$ = 16.893	Per = 35.9 pour cent

(3) Garçons 72

a = −0.228	S^2 = 1.41
b = 18.093	S_x = 2.5
$\overline{X}$ = 4.298	S_y = 1.314
Y = 17.111	Per = 18.9 pour cent

Etude No 4: Relation entre la somme de tous les espaces mesurés et le diamètre mésio-distal des incisives inférieures permanentes.

Aucune relation statistiquement significative n'a pu être établie entre les variables présentes dans cette étude. Les figures 3, 4 et 5 l'indiquent clairement. Ainsi, les

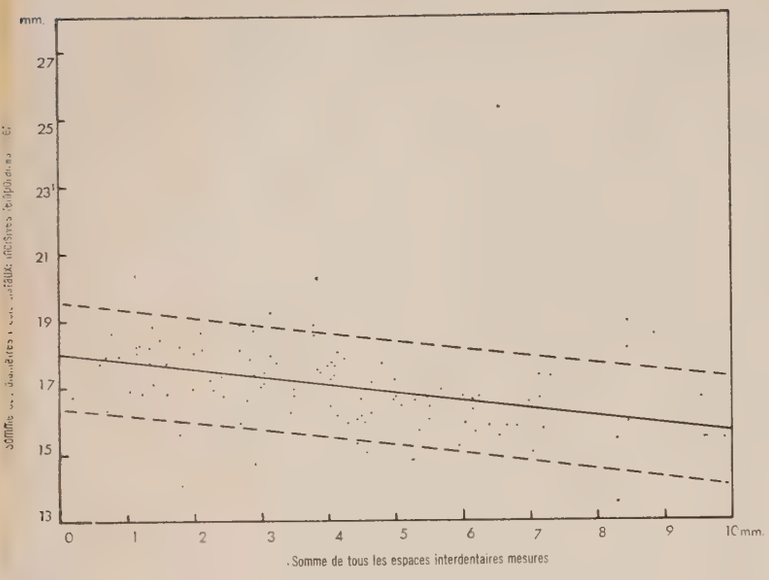


FIGURE 2 Garçons: 72 cas; filles: 43 cas.

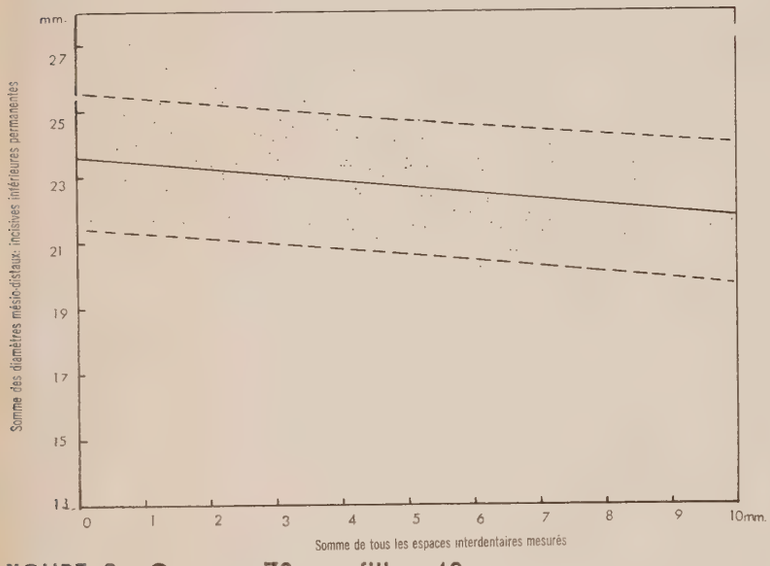


FIGURE 3 Garçons: 72 cas; filles: 43 cas.

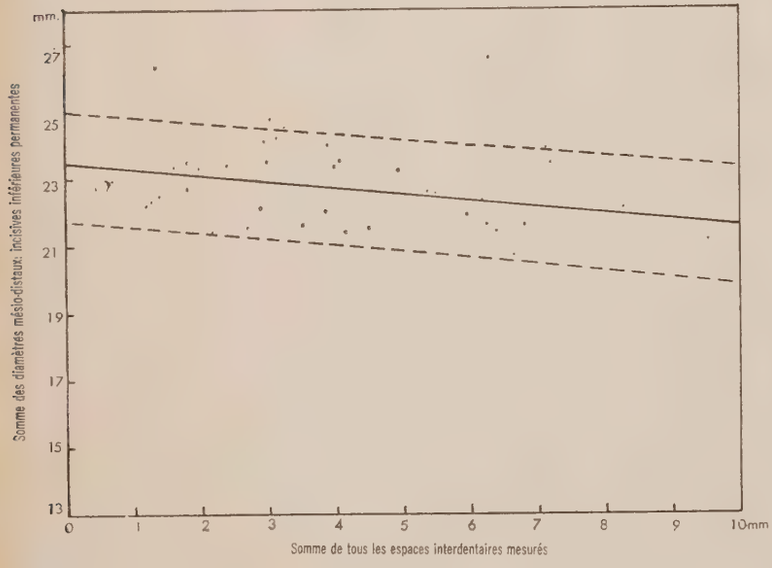


FIGURE 4 Filles: 43 cas.

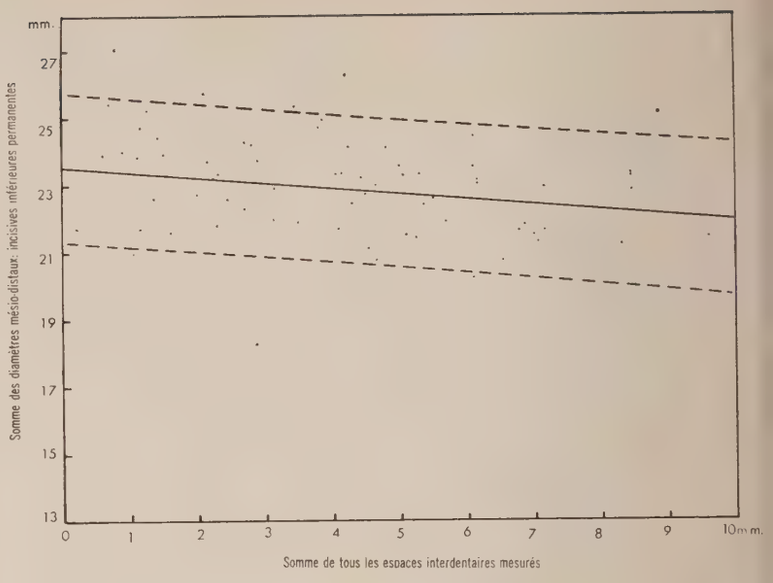


FIGURE 5 Garçons: 72 cas.

pentes des courbes relatives aux intervalles de confiance sont tellement minimes, qu'à partir de n'importe quelle somme d'espaces interdentaires dans la dentition temporaire, on peut prédire des incisives permanentes dont la somme des diamètres mésio-distaux varie à peu près toujours entre 20 et 26 mm. De plus, les pourcentages de variabilité expliquée par la régression sont inférieurs à 10 pour cent sauf pour les filles. D'ailleurs, voici les données qui correspondent à cette étude:

(1) Filles 43 + Garçons 72; n = 115

$a = -0.163$	$S^2 = 1.87$
$b = 23.513$	$S_x = 2.464$
$\overline{X} = 4.162$	$S_y = 1.422$
$\overline{Y} = 22.832$	Per = 8.06 pour cent

(2) Filles 43

$a = -0.180$	$S^2 = 1.24$
$b = 23.433$	$S_x = 2.414$
$\overline{X} = 3.934$	$S_y = 1.184$
$\overline{Y} = 22.723$	Per = 13.57 pour cent

(3) Garçons 72

$a = -.159$	$S^2 = 2.27$
$b = 23.583$	$S_x = 2.5$
$\overline{X} = 4.298$	$S_y = 1.55$
$\overline{Y} = 22.897$	Per = 6.63 pour cent

Etude No 5: Relation entre la somme de tous les espaces mesurés, moins les espaces primaires et le diamètre mésio-distal des incisives temporaires.

Encore une fois, même si on ne peut considérer comme statistiquement significative la relation entre la somme de tous les espaces interdentaires mesurés moins les espaces primaires et le diamètre mésio-distal des incisives temporaires, on ne peut ignorer la tendance positive des résultats obtenus. Cela tient une fois de plus à la cohésion des points expérimentaux, à l'importance de la pente des courbes relatives à l'intervalle de confiance, au pourcentage de variabilité expliquée par la régression, ainsi qu'à la petitesse de l'erreur type de S^2 estimée. Il faut noter également que le fait de se limiter aux espaces entre les incisives, sans tenir compte des espaces primaires, augmente la corrélation de façon sensible. Pour bien illustrer ce fait, une comparaison entre les pourcentages de variabilité expliquée par les courbes de régression relatives à chacun des groupes intéressés s'impose:

	Total Per (%)	Filles Per (%)	Garçons Per (%)
Etude No 3			
Tous les espaces mesurés vs les incisives temporaires.	22.4	35.9	18.9
Etude No 5			
Tous les espaces moins les espaces primaires vs les incisives temporaires.	26.8	38.3	24.0

La figure 6 illustre les points expérimentaux et les résultats statistiques obtenus pour le total des observations concernant l'étude no 5; en voici les données:

Filles 43 + Garçons 72; n = 115

$a = -0.326$	$S^2 = 1.08$
$b = 17.948$	$S_x = 1.926$
$\overline{X} = 2.813$	$S_y = 1.422$
$\overline{Y} = 22.832$	Per = 26.8 pour cent

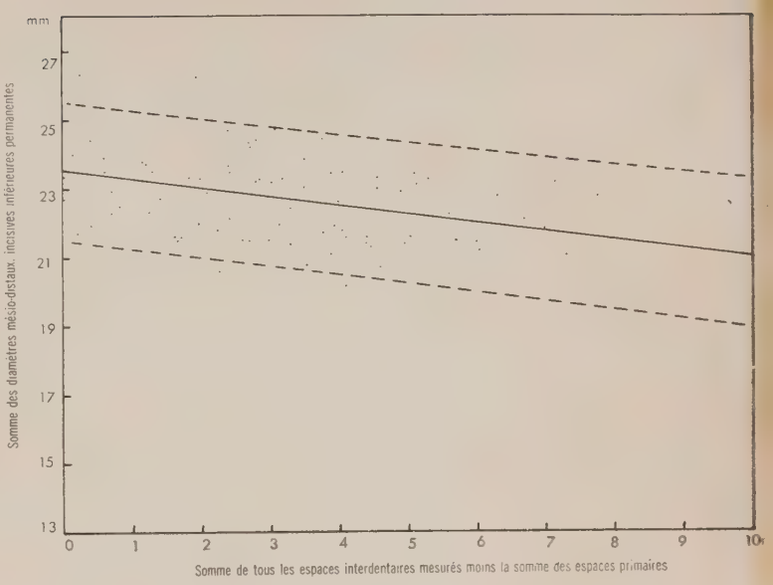


FIGURE 6 Garçons: 72 cas; filles: 43 cas.

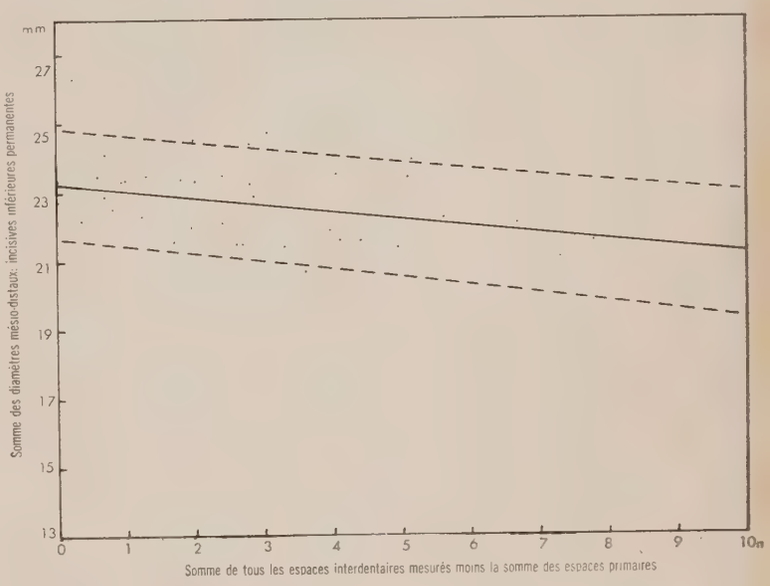


FIGURE 7 Filles: 43 cas.

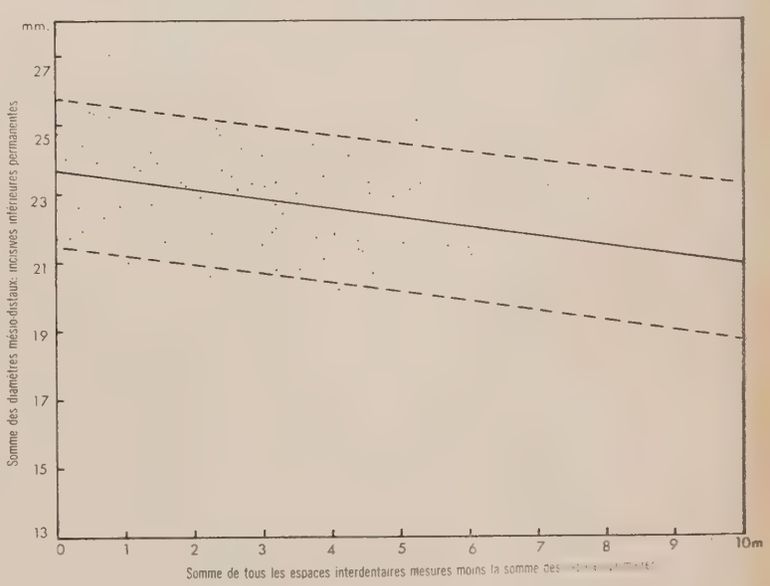


FIGURE 8 Garçons: 72 cas.

Etude No 6: Relation entre la somme de tous les espaces mesurés, moins les espaces primaires, et le diamètre mésio-distal des incisives inférieures permanentes.

Dans cette étude, aucune relation statistiquement significative n'a pu être établie entre les espaces interdentaires dans la dentition temporaire au niveau des incisives permanentes correspondantes. Les raisons principales demeurent la faiblesse du pourcentage de la variation expliquée par la régression, le trop grand champ de prédiction délimité par les intervalles de confiance, le manque d'inclinaison de la pente et l'importance de l'erreur type de S^2 estimée. Chacune de ces raisons peut être retrouvée soit dans les figures 7, 8 et 9, soit dans les données statistiques suivantes:

(1) Filles 43 + Garçons 72: n = 115

a = 0.238	S^2 = 1.82
b = 23.502	S_x = 1.926
$\overline{X}$ = 2.813	S_y = 1.42
$\overline{Y}$ = 28.83	Per = 10.4 pour cent

(2) Filles 43

a = −0.206	S^2 = 4.036
b = 23.271	S_x = 1.25
$\overline{X}$ = 2.661	S_y = 1.184
$\overline{Y}$ = 22.723	Per = 12.2 pour cent

(3) Garçons 73

a = −0.265	S^2 = 2.18
b = 23.669	S_x = 1.883
$\overline{X}$ = 2.904	S_y = 1.550
$\overline{Y}$ = 22.897	Per = 10.4 pour cent

Discussion

Echantillon. — Les cas utilisés dans l'élaboration de ce projet représentent certainement une partie idéale de la population. Notre échantillon, en effet, est constitué de 85 à 90 pour cent de sujets résidant à Burlington. Et nous avons déjà mentionné le fait que cette petite ville de l'Ontario avait été choisie à cause du standard de vie particulièrement bien équilibré de ses citoyens. Quant aux données que nous avons finalement acceptées, elles correspondent à des normes idéales. C'est ainsi que nous avons éliminé les cas comportant des difficultés de mesure dues soit au chevauchement, soit à la présence de carie ou d'obturation, qui nous auraient obligés à prendre deux antimères. La qualité et l'origine de nos mesures ne peuvent donc pas être mises en doute.

Méthode et matériel. — Les techniques d'empreintes et de mesures employées sont également très représentatives et couramment acceptées en dentisterie.

Quant à la méthode statistique, celle du moindre carré, elle a été suggérée à la fois par le Centre de recherche de Burlington et le Centre de statistique et de calcul de l'Université de Montréal. Il est bon de noter ici que les intervalles de confiance n'ont pas été calculés selon des moyennes, mais bien à partir de chacun des points expérimentaux. Ceci donne aux études menées un degré de rigidité extrême. De fait, ce travail devant conduire à l'élaboration d'une table de prédiction, il était essentiel de calculer les intervalles de confiance pour chacun des points expérimentaux. Car cette table aurait été utilisée pour diagnostiquer des cas particuliers et non des moyennes. Ainsi, l'unique façon d'atteindre une précision mathématique suffisante était de procéder tel que décrit ci-haut. La méthode employée couramment, qui consiste à conclure à l'emporte-pièce à partir d'intervalles calculés selon des moyennes, laisse la porte ouverte à toutes sortes d'interprétations personnelles et portant à une multitude d'erreurs. En somme, l'établissement du programme statistique, les entrées sur le calculateur électronique et la lecture des résultats statistiques avec leurs adaptations cliniques ont été menés avec précision et avec le concours de spécialistes dans chacun des domaines intéressés.

Résultats

Considérons d'abord pour chacune de nos analyses les pourcentages de variabilité expliquée par la régression (Tableau 1).

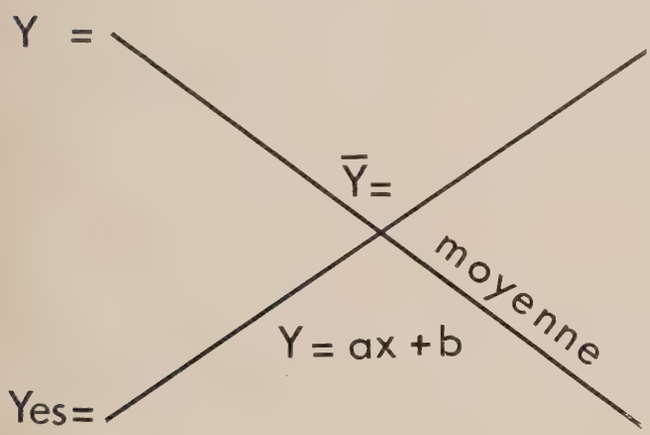
Il importe avant d'aller plus loin d'expliquer brièvement ce qui constitue le pourcentage de variabilité expliquée. L'équation de la régression linéaire est la suivante: $Y = aX + b$

$$\Sigma(Y-\overline{Y})^2 = \Sigma(Y-Y_{es})^2 + \Sigma(Y_{es}-\overline{Y})^2$$

$\Sigma(Y-\overline{Y})^2$ — Variance d'échantillon.

$\Sigma(Y-Y_{es})^2-Y_{es}$ constitue Y estimé ou calculé. Il nous donne la différence entre Y estimé ou calculé et Y observé. La somme de toutes les différences constitue la somme de la variabilité non expliquée.

$\Sigma(Y_{es}-\overline{Y})^2$ — nous donne la différence entre la moyenne $\overline{Y}$ et les Y estimés ou calculés. C'est la variabilité expliquée.



Ainsi, si l'on veut faire le rapport suivant:

$$\frac{\text{la variabilité expliquée} \times 100}{\text{la variabilité totale}}$$

on obtient le pourcentage de variabilité expliquée par la régression.

A l'aide de ces notions, il est maintenant plus facile de comprendre pourquoi les différentes études menées au cours de ce travail ne nous permettent pas de conclure à une relation statistiquement significative entre les espaces interdentaires en question et la somme des diamètres mésio-distaux des dents en cause. En d'autres mots, le nombre de cas à l'extérieur de l'intervalle de confiance, ou la variabilité non expliquée, est trop considérable pour être attribuée à des facteurs exogènes épars et accidentels comme la diète ou les désordres endocriniens. Revoyons à nouveau chacune des études.

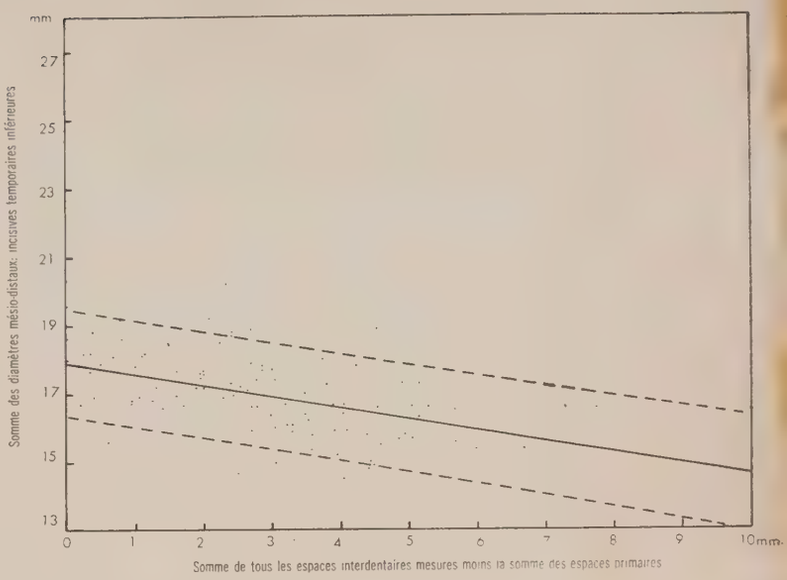


FIGURE 9 Garçons: 72 cas; filles: 43 cas.

Etudes nos 1 et 2. Elles couvrent les espaces primaires versus les incisives temporaires et permanentes. D'après les résultats obtenus, la variabilité non expliquée est tellement importante ici, qu'en plus d'une relation non significative entre

TABLEAU 1 Analyses des études nos 1-6. Les pourcentages de variabilité.

Etude	Pourcentages de variabilité		
	Filles 43	Garçons 72	Total 115
No 1	5.26	2.8	3.2
No 2	4.4	0.2	0.7
No 3	35.9	18.9	22.4
No 4	13.5	6.6	8.0
No 5	38.3	24.0	26.8
No 6	12.2	10.4	10.4

ces variables du point de vue mathématique, on devrait à toute fin pratique conclure que les espaces primaires n'ont rien à voir avec les dimensions des incisives inférieures temporaires ou permanentes. Peut-être en est-il autrement de leur corrélation avec les canines et prémolaires? D'ailleurs, la différence qui existe entre les comparaisons des espaces en entier moins les espaces primaires, versus les diamètres des incisives temporaires ou permanentes dans les études nos 3 et 5, ne fait que confirmer le peu de corrélation entre les espaces primaires et la largeur des incisives.

Les études nos 4 et 6, relatives à la somme des espaces interdentaires versus les diamètres des incisives permanentes, ne sont guère plus concluantes. Les pentes des courbes concernant ces deux études sont tellement minimes qu'on pourrait prédire, à partir d'un total d'espaces donnés, à peu près n'importe quelle dimension pour les permanentes à venir entre 20 et 26 mm.

Quant aux études nos 3 et 5, relatives aux mêmes espaces interdentaires dans la dentition temporaire versus la somme des diamètres mésio-distaux des incisives temporaires, les résultats dénotent une tendance nettement significative au point de vue strictement mathématique. La pente, en effet, sans être exagérée, n'est pas du tout négligeable; et si l'on y joint les pourcentages de variabilité expliquée, on obtient des résultats qui peuvent avoir une valeur clinique intéressante.

Prenons comme exemple l'étude no 3. Si chez un sujet donné, on a des incisives temporaires totalisant 15 mm. de diamètre, ces incisives devraient être séparées par des espaces totalisant 6 mm. (Figure 2). Au point de vue clinique, cela veut dire que, si les incisives du sujet en question, ne sont pas espacées, nous pouvons au moins dire que le cas n'est pas normal ou idéal. En partant du principe qu'un homme averti en vaut deux, nous pouvons dire que ce graphique peut devenir un autre instrument de pronostic au service de l'orthodontiste.

Un mot encore sur certains points qu'il est bon de se rappeler. D'abord, le fait d'avoir obtenu une pente négative s'explique aisément si l'on songe que moins les dents sont espacées, plus on a de chances d'avoir de grosses dents temporaires. Quant à la tendance positive, elle est basée en partie sur le pourcentage de variabilité expliquée, lequel est assez élevé dans les études nos 3 et 5.

Or, on considère généralement que, pour des études d'ordre biologique, un pourcentage de variabilité expliquée de 40 à 50 pour cent est très bon. Les facteurs pouvant entrer en ligne de compte dans une expérience d'ordre biologique sont tellement nombreux et variés qu'un pourcentage plus élevé s'atteint difficilement. La tendance positive d'une étude est aussi fonction de l'erreur type de S^2 estimée. C'est lui qui tient compte des mesures individuelles observées et qui en définitive devient l'écart type relatif aux données d'une étude en particulier. Rappelons, enfin, que tous les intervalles de confiance contenus dans ces études ont été calculés à un niveau de 85 pour cent lequel correspond au niveau le plus bas généralement admis en dentisterie et qu'ils furent calculés, non à partir d'une moyenne, mais bien à partir de chaque point expérimental.

Résumé

Une analyse de la corrélation entre les espaces interdentaires dans la dentition temporaire et le diamètre des incisives inférieures temporaires et permanentes a été faite à partir de cas fournis par le Centre de recherche orthodontique de Burlington.

Les données compilées ont été analysées à l'aide d'un calculateur électronique au Centre de statistique et de calcul de l'Université de Montréal.

Les corrélations étudiées n'ont pas été jugées statistiquement significatives, surtout à cause du trop faible pourcentage de variabilité expliquée par la régression relative à chacune des études.

Il a cependant été démontré que les espaces interdentaires dans la dentition temporaire versus le diamètre mésio-distal des incisives temporaires inférieures pouvaient fournir une indication clinique sérieuse: un manque d'espace entre les incisives temporaires chez un sujet qui devrait normalement en avoir peut être un signe indicateur de problèmes d'espace futur.

Conclusions

1. Aucune relation significative n'a pu être établie entre les espaces primaires et le diamètre mésio-distal des incisives inférieures temporaires ou permanentes.
2. Aucune relation significative n'a pu être établie entre les espaces interdentaires dans la dentition temporaire et le diamètre mésio-distal des incisives permanentes inférieures.
3. Il semble y avoir une corrélation entre les espaces interdentaires dans la dentition et le diamètre mésio-distal des incisives temporaires inférieures.
4. Au point de vue clinique, un tableau pourrait être établi lequel conduirait à la prédiction d'un manque d'espace ou non pour les incisives permanentes, à partir d'un rapport entre les espaces interdentaires dans la dentition temporaire et le diamètre mésio-distal des incisives inférieures correspondantes.

Summary

An analysis was made of correlation between interdental spacing in the mixed dentition and mesiodistal diameters of deciduous and permanent lower incisors. This analysis was made on cases furnished by the Burlington (Ontario) Orthodontic Research Centre. All measurements were analysed with an electronic computer at the Centre de Statistique et de Calcul at the Université de Montréal.

No statistically significant correlations were obtained, mainly because the percentage of variability, as explained by regression in each of the relationships studied, was too low.

However, interdental spacing in the mixed dentition, when related to the mesiodistal diameter of deciduous incisors, is clinically significant. If there are no spaces between lower deciduous incisors at a time when these teeth would ordinarily be spaced, a future malocclusion may be anticipated.

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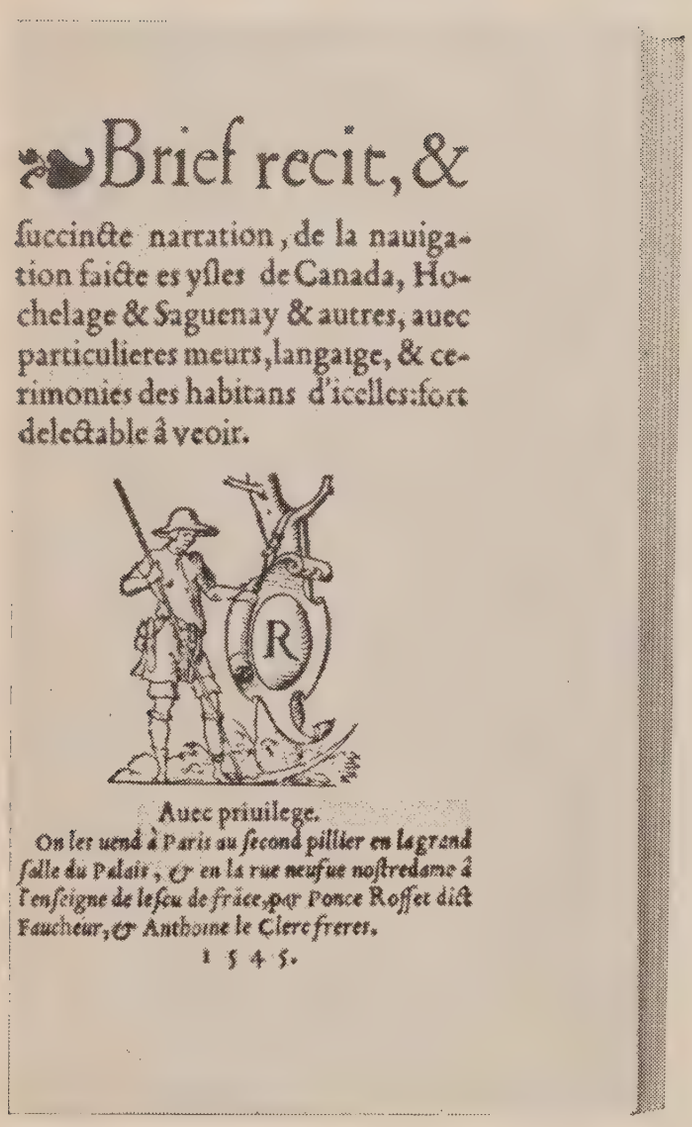
72 ouest, Cartier

First recorded outbreak of scurvy



Brief recit, &

ſuccincte narration, de la nauigation faicte es yſles de Canada, Hochelage & Saguenay & autres, auec particulieres meurs, langaige, & cerimonies des habitans d'icelles: fort delectable à veoir.

Auec priuilege.

On les vend à Paris au ſecond pillier en la grand ſalle du Palais, & en la rue neufue noſtredame à l'enſeigne de la ſeu de frace, par Ponce Roffet dict Faucheur, & Anthoine le Clerc freres.

1545.

Frontispiece of Jacques Cartier's book, *Brief Récit.* Actual page size is four and three-quarters by seven and one-quarter inches.

No visitor to Canada, and especially to the province of Quebec, can long remain ignorant of the name of Jacques Cartier, the first European to sail up the St. Lawrence River. Canadian dentists should hold his name in particular honour, for he was also the pioneer of oral research in Canada. His little book, *Brief Récit.*,[1] published in 1545, tells in his own words how his crew, wintering at Stadacona, the site of the present city of Quebec, in 1535-36 was beset by a strange and often fatal disease with terrifying oral manifestations; how on the advice of a friendly Indian he treated his men with a decoction of the leaves and bark of the tree 'Annedda;' and how by an experiment that in outcome, if not in forethought, was a controlled one, he proved the tree to contain a sovereign remedy.

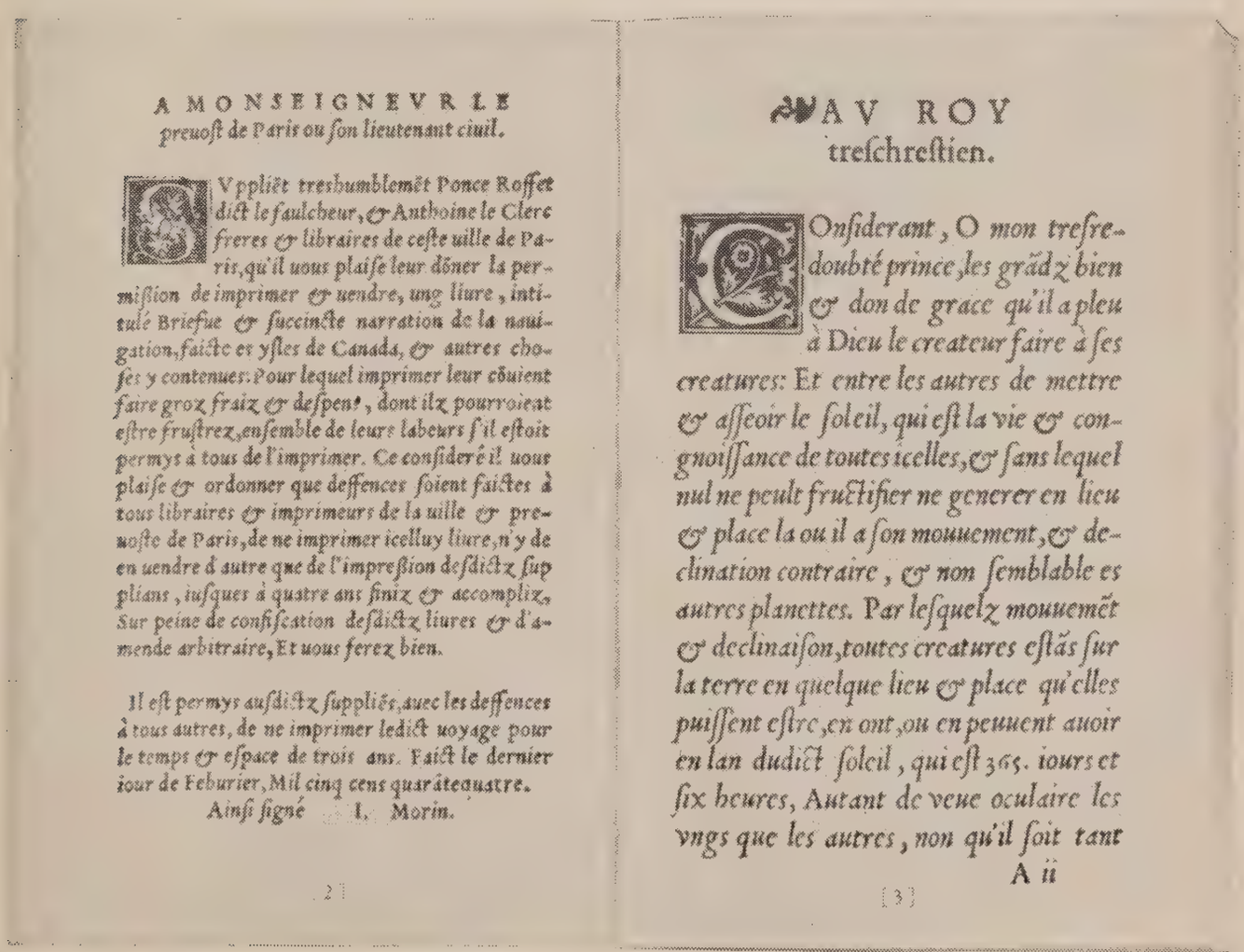
As to the identity of the disease there can be no doubt. Cartier's account of its course and clinical manifestations are vivid and exact. It was *La grosse maladie* or scurvy, an illness not hitherto named, fully described or effectively treated. As to the identity of the tree 'Annedda,' however, there has been no general agree-

*Visiting lecturer in history of dentistry, Faculty of Dentistry, McGill University, Montreal.

C. C. Bourne, D.D.S., Montreal, P. Quebec*

among early French explorers in Quebec

The first two pages of Cartier's *Brief Récit* bearing copyright (l.) and the dedication (r.) to His Most Christian Majesty Francis I of France.



A MONSEIGNEVR LE
preuoſt de Paris ou ſon lieutenant ciuil.

Vppliēt treshumblemēt Ponce Roffet dict le faulcheur, & Anthoine le Clere freres & libraires de ceſte ville de Paris, qu'il vous plaiſe leur dōner la permiſſion de imprimer & uendre, ung liure, intitulé Briefue & ſuccincte narration de la nauigation, faicte es yſles de Canada, & autres choſes y contenues: Pour lequel imprimer leur cōuient faire groz fraiz & deſpens, dont ilz pourroient eſtre fruſtrez, enſemble de leurs labeurs ſ'il eſtoit permys à tous de l'imprimer. Ce conſideré il vous plaiſe & ordonner que deffences ſoient faictes à tous libraires & imprimeurs de la ville & preuoſte de Paris, de ne imprimer icelluy liure, n'y de en uendre d autre que de l'impreſſion deſdictz ſupplians, iuſques à quatre ans finiz & accompliz, Sur peine de confiſcation deſdictz liures & d'amende arbitraire, Et vous ferez bien.

Il eſt permys auſdictz ſuppliēs, auec les deffences à tous autres, de ne imprimer ledict voyage pour le temps & eſpace de trois ans. Faict le dernier iour de Feburier, Mil cinq cens quarāteaustre.
Ainſi ſigné I. Morin.

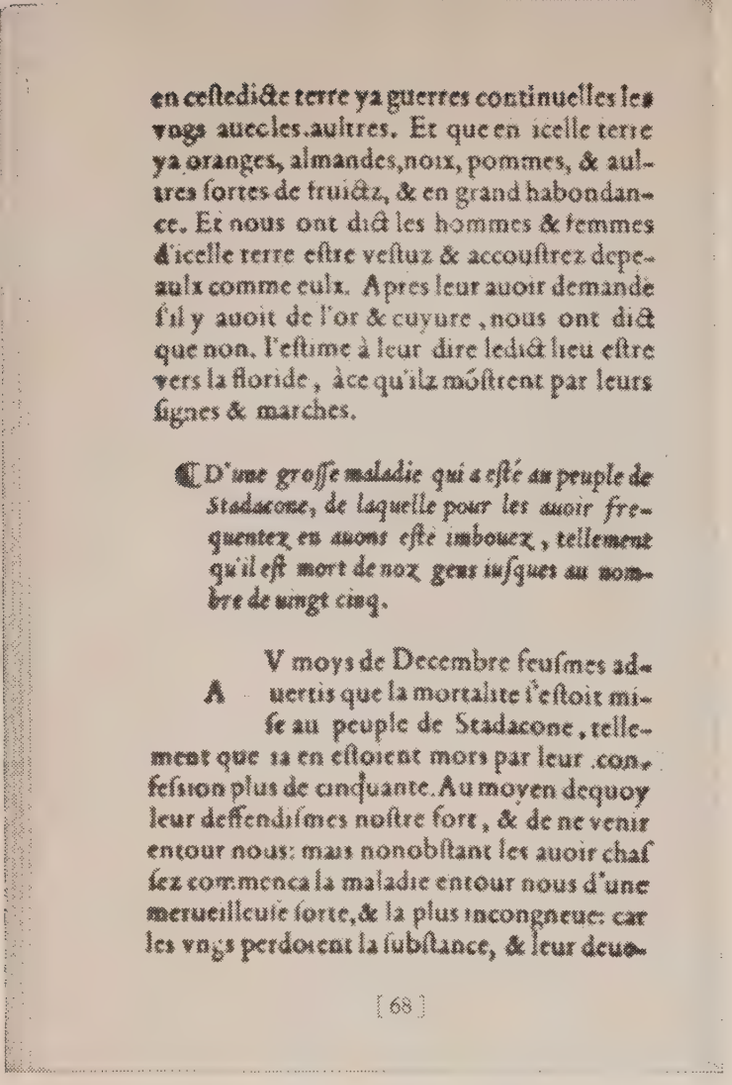
[2]

AV ROY
treſchreſtien.

Conſiderant, O mon treſredoubté prince, les grādz bien & don de grace qu'il a pleu à Dieu le createur faire à ſes creatures: Et entre les autres de mettre & aſſeoir le ſoleil, qui eſt la vie & congnoiſſance de toutes icelles, & ſans lequel nul ne peult fructifier ne generer en lieu & place la ou il a ſon mouuement, & declination contraire, & non ſemblable es autres planettes. Par leſquelz mouuemēt & declinaiſon, toutes creatures eſtās ſur la terre en quelque lieu & place qu'elles puiſſent eſtre, en ont, ou en peuuent auoir en lan dudict ſoleil, qui eſt 365. iours et ſix heures, Autant de veue oculaire les vngs que les autres, non qu'il ſoit tant

A ii

[3]



en ceſtedicte terre ya guerres continuelles les vngs auecles aultres. Et que en icelle terre ya oranges, almandes, noix, pommes, & aultres ſortes de fruictz, & en grand habondance. Et nous ont dict les hommes & femmes dicelle terre eſtre veſtuz & accouſtrez depeaulx comme eulx. Apres leur auoir demande ſil y auoit de lor & cuyure, nous ont dict que non. Leſtime à leur dire ledict lieu eſtre vers la floride, àce quilz mõſtrent par leurs ſignes & marches.

¶ *D'une groſſe maladie qui a eſté au peuple de Stadacone, de laquelle pour les auoir frequentez en auons eſte imbouez, tellement quil eſt mort de noz gens iuſques au nombre de vingt cinq.*

A V moys de Decembre feuſmes aduertis que la mortalite ſeſtoit miſe au peuple de Stadacone, tellement que ia en eſtoient mors par leur confeſſion plus de cinquante. Au moyen dequoy leur deffendiſmes noſtre fort, & de ne venir entour nous: mais nonobſtant les auoir chaſſez commenca la maladie entour nous dune merueilleuſe ſorte, & la plus incongneue: car les vngs perdoient la ſubſtance, & leur deua-

[68]

Page 68 of Cartier's *Brief Récit.*

ment. It may have been one of the conifers, but of what species we remain in ignorance. We should also remember that scurvy is a dramatic and terrible manifestation of nutritional deficiency of vitamin C. In milder form this problem confronts and sometimes confounds present-day periodontists.

The incident which Cartier so vividly describes occurred at a time when Jane Seymour was ministering to the ageing Henry VIII of England. King Henry, that season, had some trouble in Lincolnshire and Yorkshire, provoked partly by the dissolution of the monasteries and partly by the aftermath of the Pilgrimage of Grace. The events of 1535-36 occurred 52 years before the Spanish Armada, and 225 years before General Amherst entered Montreal.

The only existing copy of Cartier's *Brief Récit.* now reposes in the British Museum in London, England. Two thousand five hundred photographic reproductions of the original volume were distributed as souvenirs to delegates attending the 19e Congrès international de Physiologie in Montreal, 1953. Translated into English by Jean L. Launay, the following extract from pages 68-76 of *Brief Récit.* describes the first recorded outbreak of scurvy among Europeans in Canada:

¶ *Of a baneful disease which visited the people of Stadacona and which, for mixing with them, attacked us so fiercely that as many as twenty-five of our men died thereof.*

In the month of December, we heard that a pestilence had set upon the people of STADACONA, so deadly that, on the natives' own admission, it had already claimed the lives of over fifty of them. Whereupon we forebade the Indians to enter our fort and mix with us; but notwithstanding we had driven them away, the disease, wholly unknown to us as it was, broke out among us with amazing severity. Some lost their very substance and their legs became swollen and puffed up while the sinews contracted and turned coal-black, and, in some cases, all blotched with drops of purplish blood. Then the disease would creep up to the hips, thighs and shoulders, arms and neck. And all the sick had their mouths so tainted and their gums so decayed that the flesh peeled off down to the roots of their teeth while the latter all fell out in turn. That disease spread out among our three ships so widely that by mid-February, out of our group of one hundred and ten, there were not ten left in good health and we were unable to tend one another, a circumstance all the more painful in view of our present location. For the Indians would daily come to our fort and see few of us about. And we already had eight men dead and there remained over fifty we had given up for lost.

Our captain, seeing our plight and the severity of the disease, bade us all pray and make orisons and had an image of the Virgin Mary carried across the ice

and snow, and placed against a tree at a distance of about a bow-shot from the fort. And he ordered that on the following Sunday, Mass should be said on that spot where to all who could walk, whether sick or well, should march in procession singing the seven psalms of David and the Litany, praying the Virgin to be good enough to ask her dear Son to have pity on us. After Mass had been said and celebrated before the image, the captain vowed, should God grant him safe return to France, to go on a pilgrimage to Our Lady of Rocamadour. On that day passed away Phillippe Rougemont, a native of Amboise, of some twenty-two years of age.

Because of our ignorance of the disease, the captain had the body opened to obtain whatever knowledge of it might help to preserve the rest of us if possible. The heart was found white and wrinkled, with nearly two quarts of reddish, date-coloured water about it. The liver was healthy but the lungs were all blackened and mortified and all the blood had collected above the heart, for, when the body was cut open there issued from above the heart a large amount of dark, putrefied blood. The spleen, for two fingerbreadths near the backbone, was likewise a little affected, as if it had been rubbed on a rough stone.

These facts having been noted, one thigh was cut open and found very black outside but with fairly healthy flesh inside. The examination over, we buried the body as best we could. May God in his holy grace have mercy on his soul and on those of all the dead:

From then on, the disease made such daily advance that, at one time, on all our three ships there were not three men in good health; and, on one particular vessel, not a single man was well enough to go down below deck to draw water for himself or his comrades. Several had already died whom, from sheer weakness, we had to be content to bury beneath the snow, for at that time the ground was frozen hard and we were too feeble and exhausted to dig into it. And we were also in desperate fear lest the Indians should realize our plight and helplessness. To cover up the inroads of the disease, whenever the natives approached our fort, our captain, whom God continually preserved in good health, would go out to meet them, escorted by two or three men, either sick or well, who were ordered to follow him.

No sooner had these men passed the gate than our captain pretended to beat them, shouting and throwing sticks at them, and motioning them back on board their ships, indicating to the Indians by signs that he was keeping all his men busy inside, below deck, some at caulking, others at baking bread and other tasks, and that the crew were forbidden to leave their vessels. This the natives believed. And the captain had the sick men hammer and make loud noise within the ships with sticks and stones as if they were caulking. At that time the disease had taken such a hold on us that we had almost given up hope of ever returning to France. But God in his infinite goodness and mercy took pity on us and apprized us of the most excellent remedy for all diseases that ever was seen or found here below, as will appear in the next chapter.

¶ *The length of time we stayed at Ste-Croix Harbour frozen up in ice and snow, and the number of men who died of the disease from its first outbreak until mid-March.*

From mid-November until the fifteenth day of April, we continually remained imprisoned in the ice which was over two fathoms in depth, while on land the snow was at least four feet deep and reached higher than the bulwarks of our ships. This lasted until the aforementioned date and consequently all our beverages froze in their casks. Our ships were coated inside from top to bottom with a sheet of ice, four fingers thick. The river, wherever the water was fresh, was all frozen as far up and beyond HOCHELAGA. During that period there died as many as

twenty-five of our best and ablest seamen, and at this time there were over fifty whom we had given up for lost and the remainder were all sick except three or four. But God in his divine grace took pity on us and revealed the remedy which cured and healed us in the manner which will be told in the next chapter.

¶ *How by the Grace of God we were imparted knowledge of a species of tree, the use of which cured us, and of the proper way of using it.*

One day our captain, confronted with the severity of the disease and the inroads thereof of his men, had gone outside the fort, and was taking a walk on the ice, when he caught sight of a band of natives coming from Stadacona. Among them was Don Agaya whom, ten or twelve days before, he had seen suffering from the same disease, as now preyed upon his company — one of the Indian's legs below the knee, being swollen to the size of the body of a two-year old child and all its sinews contracted, his teeth decayed and blackened and his gums infected and rotten.

The captain rejoiced to see Don Agaya well in mind and body for he hoped to learn from him the manner of his cure in order to apply the same treatment and remedy to his own men. As soon as the Indians had drawn near the fort, the captain asked Don Agaya how he had been cured. The latter replied he knew of the juice and the dregs of the leaves of a tree which had healed him and was the one and only remedy for all diseases. The captain inquired whether there were such trees in the vicinity and begged the Indian to point them out. Being loath to disclose how many of his men were actually sick, he added that he wished to cure his servant who had caught the disease while staying with Donnacona at Canada. Don Agaya then sent two squaws to fetch some of that tree and they brought back nine or ten boughs. They told us how to strip off the bark and leaves from the wood, boil them in water, and drink the liquor every other day while placing the dregs on swollen and afflicted legs. This tree, they said, cured all diseases. In their language they call it AMEDA. (Elsewhere, Cartier and others call the tree Annedda. Some observers suggest that it was a white cedar.)

Soon afterwards, the captain ordered such a potion to be prepared for his sick men to drink. But all were unwilling to try the medicine except one or two who ventured to test it. No sooner had they drunk than they improved in a manner truly and obviously miraculous. For, after drinking of it twice or thrice, they recovered their health and were healed of all the disorders afflicting them. So much so that one of the men who had been suffering from the pox for five or six years was completely cured of it by the remedy. When this was seen and known, there was such a rush on the medicine that they almost murdered one another in their eagerness to be first served. So that in six days a whole tree as large and tall as any oak in France was used up. And in those six days it worked more wonders than all the physicians of Louvain and Montpellier using all the drugs in Alexandria could have done in a year. For that tree did us so much good that all those who consented to use it were cured and recovered their health, thanks be to God.

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1414 Drummond Street

Relative value system produces rational dental fees

The determination of fair compensation for one's labour is never an easy task. Nowhere is this more apparent than in the practice of dentistry. Variety in the fees charged for the same dental service, though justifiable in the eyes of practitioners, often seems arbitrary to patients and constitutes a major source of friction between the public and the profession. Disparity in the relative values of different services spawns a host of additional problems. Impelled by public predilection for the more tangible or dramatic aspects of dental care, we have tended to put a premium on time-consuming reparative services at the expense of those measures which serve to protect the integrity of the original equipment with which we are endowed.

Many dentists have sought their own solutions to these problems, sometimes with notable success. Others have been content, as it were, to go along with the vagaries of the market, neither capitalizing on, nor seeking to alter public attitudes towards dentists' fees. This has resulted in a patchwork of fees more akin to the constantly changing reflections of a kaleidoscope than the rational kind of tariff expected of a learned profession. The advent of contractual arrangements between the profession and group purchasers of dental care and the consequent requirement for agreed fee schedules brings the whole matter into sharper relief.

The basic problem is how to devise a fee that realistically reflects the value of a dental operation, how to equate different operations in order that resultant fees may bear a reasonable relationship to each other, and how to preserve an element of flexibility that permits adjustment to prevailing regional economic patterns. This the Dental Services Committee has now achieved through its proposed relative value system for fee determination.

Starting with an arbitrarily selected unit of service that is at once simple and frequently performed, yet limited in variation of technique, the authors have developed an ingenious but fairly simple formula that permits calculation of the relative values of different dental operations. Their formula gives due consideration to the factors of time, responsibility —as determined by the required technical skill, scientific knowledge and professional judgement—and whatever laboratory costs may be involved in performing each service. Average time factors are given to each dental operation. These operations are then classified into four groups according to the degree of responsibility involved, and a responsibility factor is assigned to each group. Multiplication of the pertinent time and responsibility factors yields a relative value for each operation. This relative value is logically related to that of the basic unit of service — in this case an uncomplicated occlusal amalgam restoration in a bicuspid. The dollar value of each operation is then calculated by applying a selected dollar conversion factor against its relative value. By making allowance for variations in economic conditions, the employment of dental auxiliaries, office overhead

expense, and other components that are not susceptible to generalized application, this variable dollar conversion factor introduces desired flexibility while conserving the relationship of the various services within a relative value fee system. The individual practitioner who wishes to devise his own personal fee schedule with the aid of the relative value formula simply selects the time factor and conversion factors that suit his individual needs. Thus the formula gives uniform results for the same dental service rendered under identical conditions anywhere, but the time and conversion factors permit adjustment of dollar values to suit prevailing local circumstances.

In developing a relative value system for determining dental fees, the Dental Services Committee has rendered a signal contribution to the practice of dentistry. Its report, contained in the *Transactions* of the 1964 Annual Meeting of the Board of Governors, will be of consummate interest to every dentist.

As Others See It

Health and priorities

The most important result to date of the report of the Royal Commission on Health Services — recommending establishment of a government operated, comprehensive, universal personal health service — has been to rivet attention on the long-standing need for Canadians to set an order of priorities for their goals of human betterment and improved standards of living.

Some months ago it appeared that a consensus was being reached that Canada's goal for the immediate future would be an expansion of the private sector of the economy so as to permit it to provide jobs for the unemployed and the expanding labour force.

The consensus on means appeared to be shaping up to be quite similar to that reached in the United States: the private sector could do this job if spurred by a reduction of the current corporate tax rate, and a high level of consumer demand brought about by reductions in personal income taxes. Goals of human betterment would be sought mainly through higher incomes, with any new public programs being chosen to complement the overall goal. One of the essentials to the success of this approach would be the assurance of an adequate supply of capital for the private sector, preferably with an increasingly large portion of it coming from domestic sources such as private pension funds.

To some extent this immediate goal of general economic expansion may appear to have been achieved without the tax cut. However, considerable opinion remains that the long expansion now being experienced results from the combination of several fortuitous factors — unexpectedly large wheat sales, the overflow from the anticipation of tax cuts in the U. S. (with the effects of the actual cut still to come), and inflationary tendencies in European economies, together with the stimulus remaining from the Canadian devaluation. Since none of these factors can be counted upon to continue indefinitely, one need not be a Calamity Jane to want to keep a tax cut or cuts within close reach. As a result, and particularly in the face of the possible long run effects of U. S. cuts on investments as between the two countries, few would at this time counsel tax increases for any reason apart from a national emergency.

However, in one stage or another Canada now has before it three major demands involving sizeable costs and/or shifts of funds and functions from the private to the public sectors — education, health and pensions. Fortunately, it would appear that even the most fervent advocates of spending more of our resources in these areas are impressed with

the fact that some hard, unpleasant choices will have to be made. In some ways the developing contest might be described as being between the young, the old, and the ill for a greater immediate share of the national income. With such contestants it is not difficult to understand why emotions and political judgements will play the major roles in the making of decisions as to priorities.

For each group a strong case can be made that income diverted through the public sector to it from the currently productive members and business units of our society will quickly pay dividends to the economy, in addition to the human benefits expected.

It has long been recognized that a great part of a country's economic growth can be attributed to a rising level of education, and that for the individual the level of education and the level of income have a marked correlation. It follows that investments in education and training can readily be shown to pay dividends to the community as a whole as well as to the persons who receive it.

The Health Commission takes pains to show that poor health and low incomes also go hand in hand (although it is perhaps debatable, as a general proposition as opposed to individual cases, whether low incomes are the product of inadequate health care or vice versa), and of course, where youth and illness combine, expenditures on education are unlikely to be productive. The Health Commission also makes a strong case for the proposition that ill health is a major drag on a nation's productivity and points out that an extended health program would produce many job opportunities.

For the aged it can be shown that larger incomes for them are quickly translated into effective demand for goods and services which in turn should stimulate the private sector of the economy and thus create jobs. The same of course can be said for the vast bulk of the population in this and every other country.

It need hardly be said there are few people to be found in Canada, or for that matter in the world, regardless of their political persuasion or personal means, who do not want to see rapidly rising incomes, opportunity for everyone to receive education to the limits of his abilities, the best health service science can provide, and adequate income to live in dignity in retirement. In fact this just about sums up the aims of all individuals, societies and their governments, past and present.

With little or no argument about ultimate objectives, the question becomes one of methods and means, the selection of the aims in the order which will bring all the aims to fruition in the shortest possible time span, and decisions as to whether in the long, as well as the short run, a goal can be reached more efficiently through the public or private sectors.

If Canada and its economy were a world unto itself the choice would be easier; we could proceed as we wished — at our own pace advancing slowly on all fronts at once, or more quickly on one front at a time — since there would be no other place for investment or for our more venturesome citizens to go to. In these unreal circumstances, Canada's tax rates or cost structures would be of little consequence.

But since Canada's economy and its borders open to the world, our costs structures and tax and savings rates do have a bearing on whether our standard of living advances or declines. This fact of life requires us to choose our path carefully, and when a solid opportunity presents itself, to improve our standards in the area clearly most in need of improvement and most likely to produce the most long-term benefits and the fewest short-term dislocations.

By this criterion there is little doubt that in the present economic context, election promises and politics aside, whatever can be squeezed out of the private sector of the economy for increased public spending would go for education and the upgrading of the labour force. This spending would seem to be the most clearly com-

patible at the present time with an overall goal of more employment opportunities and generally higher incomes. It is not unlikely that a poll of knowledgeable Canadian opinion at this time would list education, health, and pensions in that order of priority — the opposite to the order which appears will develop if present trends continue.

Canadian Tax Foundation, Canadian Tax Journal, Vol. 12, July-August 1964. Reprinted by permission.

Le Marché Commun et la chirurgie dentaire

Selon le traité de Rome qui a été signé en 1957 par la France, l'Allemagne, la Belgique, la Hollande, l'Italie et le Luxembourg, pour créer ce qu'on appelle le Marché Commun, il n'y aurait plus de barrières entre ces pays, à partir de 1969, pour l'exercice des médecins et des dentistes.

Cette clause du traité signifie qu'un dentiste allemand pourrait, de son plein gré et avec le minimum de formalités, installer son cabinet à Paris et y recevoir des patients. L'Association professionnelle nationale du pays accueillant ce nouveau confrère exercerait seulement un droit de regard sur la moralité et le bien-fondé de l'inscription de ce dentiste dans le registre de son ordre dans son pays d'origine. Là se bornerait l'intervention de l'organisme légal professionnel du pays choisi dans les modalités de cette migration.

Ces pays d'Europe, s'étant parfois combattu les uns les autres, de culture et d'histoire différentes, de tradition et d'esprit national divers bien ancrés, de systèmes d'enseignement hétérogènes, ont réussi à aplanir des difficultés qui nous paraissent — à nous — insurmontables.

Ce changement important dans les relations internationales des professions médicale et dentaire des pays du Marché Commun peut avoir des répercussions considérables au Canada. Car, si six pays — et peut-être bientôt dix — peuvent s'entendre sur le libre échange des dentistes, il se peut que le Canada, sous la pression du gouvernement, soit obligé de changer son système d'octroi de licences pour l'exercice de la profession.

Une entreprise du genre serait apparemment plus facile au Canada, parce que toutes les facultés dentaires ont des curriculums à peu près identiques et sont accréditées par les mêmes organismes; la mentalité de la profession dentaire est à peu près la même de l'Atlantique au Pacifique; la constitution et les règlements des Collèges provinciaux sont semblables; la diversité des langues qu'on trouve en Europe n'existe pas au même degré. Tous les organismes dentaires légaux des provinces sont membres corporatifs d'une même association, l'Association dentaire canadienne.

Quelques individus clairvoyants s'inquiètent de ce problème et souhaitent, pour éliminer un certain esprit de clocher, que tous les nouveaux diplômés des écoles dentaires canadiennes subissent le même examen et puissent exercer dans une province de leur choix.

L'idée d'abolir les cloisons étanches qui existent entre les dix provinces du Canada pour l'exercice dentaire n'est pas nouvelle. Déjà, dans le passé, il y eut le "Dominion Dental Council" qui avait établi un système basé sur des examens pour permettre aux dentistes de pratiquer dans des provinces différentes de celle où ils avaient fait leurs études et où ils avaient obtenu une licence. Cet organisme a été remplacé par le Bureau national d'examen dentaire qui décerne, depuis quelques années, un parchemin aux candidats qui ont réussi ses épreuves; ce certificat facilite la migration d'un dentiste d'une province à une autre.

Le gouvernement canadien, fort des statistiques que lui a fournies la Commission royale d'enquête sur les services de santé, réalise que la répartition des

dentistes au pays laisse à désirer et que certaines provinces n'ont pas une main-d'œuvre dentaire suffisante.

Cette latitude laissée aux dentistes d'installer leur cabinet où bon leur semblerait permettrait une meilleure distribution et favoriserait peut-être une unité nationale plus grande.

Le Corps dentaire royal canadien suit cette politique depuis sa création. Ses membres, issus des dix provinces du Canada, ont le droit d'exercer par tout le pays, sans subir les formalités imposées aux dentistes civils qui veulent changer de province pour y installer leur cabinet ou faire de l'enseignement. Les provinces ont une réglementation différente pour l'admission de dentistes canadiens venus de l'extérieur et pour ceux qui viennent de l'étranger.

Les barrières irréalistes et inutiles qui séparent les provinces devront peut-être disparaître.

G.de M.

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Le Canada

Prochaine Expo-Sciences du Canada à Winnipeg

La quatrième Expo-Sciences du Canada aura lieu à l'Université du Manitoba les 6, 7 et 8 mai 1965. Sous la présidence conjointe du Dr H. H. Saunderson, président de l'Université et le Dr W. C. Lorimer, surintendant des écoles de Winnipeg, l'Expo est à l'intention des élèves des écoles secondaires intéressés aux sciences.

En 1958 il y eut à Winnipeg la première expo-sciences régionale au Canada, qui depuis s'est propagée à 28 régions d'où proviennent les exposants qui participent à l'Expo-Sciences annuelle du Canada, soutenue et dirigée par le Conseil Canadien des Expositions Scientifiques à Ottawa. L'Association dentaire canadienne est un des organismes qui soutiennent l'Expo-Sciences.

Durant l'année académique 1963-64, plus de 200,000 visiteurs ont fait l'étude de 5,000 travaux étalés aux expos-sciences scolaires et régionales. En avril 1964, 60 finalistes se rencontrèrent à la troisième Expo-Sciences du Canada à l'Université de Montréal où deux exposants, Jean Vallières de Ste-Thérèse, P. Qué., et Mary Allison de Morrisburg, Ont., furent choisis pour faire le voyage, dépenses payées, à la Quinzaine Scientifique pour la Jeunesse à Londres en Angleterre. Mary Allison avait gagné, l'an dernier, un prix de l'A.D.C.

A Winnipeg comme à Montréal, le prix de la "Quinzaine" ainsi que des bourses d'études et le nécessaire pour l'achat de matériel de recherche seront décernés aux gagnants. Le jury se composera de scientistes et d'éducateurs reconnus dans les cercles universitaires, gouvernementaux et industriels.

Les organismes dentaires

Association dentaire de la province de Québec

Les nouveaux officiers de l'Association dentaire de la province de Québec, qui ont été élus le 23 mai 1964, sont les suivants: Président: André Grenon; Président-élu: Guy Boisclair; Vice-président: Charles Tessier; Sec.-trésorier: Vincent Dontigny.

Claude Vachon fait aussi partie de l'Exécutif de l'ADPQ, en tant que président-sortant-de-charge.

Le Corps dentaire royal canadien

Voyages officiels

Le col. I. A. L. Millar, directeur adjoint des Services dentaires, a visité le Camp Gagetown (N.-B.), du 13 au 15 juillet 1964, à titre d'observateur du quartier-général de l'Armée pendant les manoeuvres d'été des forces régulières, afin d'évaluer la qualité du nouveau matériel dentaire de campagne actuellement à

l'essai et de se rendre compte de l'organisation du Corps dentaire en campagne.

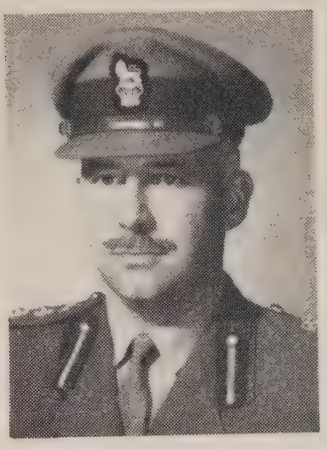
D'autre part, le maj. W. H. Harrington, du personnel de la Direction, a assisté à la Conférence sur la dentisterie préventive appliquée, qui s'est tenue à l'Army Institute of Dental Research, à Washington, (D.C.), du 27 au 30 juillet 1964.

Changements de commandant

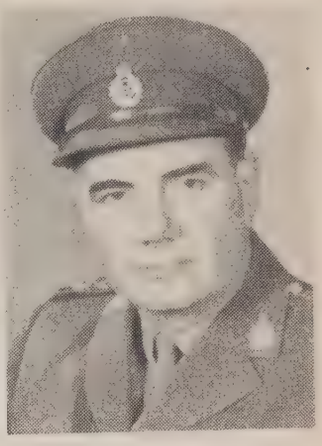
Le col. R. B. Jackson est né à Winnipeg (Man.). En 1943, il obtient son diplôme en chirurgie dentaire à l'Université de Toronto et est promu au grade d'officier du Corps dentaire royal canadien. A compter de 1943, le col. Jackson a été au service de la Marine à bord du H.M.C.S. Ontario et du Magnificent, et de l'Aviation à la 35e Unité dentaire de campagne, en Europe. Il a également servi à la Direction des services dentaires, de janvier 1956 à mai 1959, puis a été affecté à la 13e compagnie dentaire en qualité de principal spécialiste. En juillet 1961, il a été nommé commandant de la 14e compagnie dentaire (Corps dentaire royal canadien) à Winnipeg, et depuis juillet 1964, le col. Jackson occupe le poste d'officier dentiste de la région militaire et de commandant de la 15e compagnie dentaire à Montréal, P.Québec.

Le lt-col. W. W. Anglin est né à Sackville, (N.-B.). En 1944, il obtient son diplôme en chirurgie dentaire à l'Université McGill et est promu au grade d'officier du Corps dentaire la même année. A compter de 1944, le lt-col. Anglin a servi à plusieurs bases de la Marine et de l'Armée, ainsi qu'à des bases aériennes de l'A.R.C., en Corée et en Europe. En août 1962, il a été nommé clinicien principal à la 15e Compagnie dentaire à Saint-Jean, P. Québec, et à partir du mois d'août 1964, il sera commandant de la 14e Compagnie dentaire à Winnipeg (Man.).

Le lt-col. L. G. Craigie est né à Kamsack (Sask.). En 1943, il termine ses études à l'Université de Toronto. Depuis, le lt-col. Craigie a servi à plusieurs bases de l'Armée, à la 27e Brigade en Europe, et à l'Ecole du Corps dentaire en qualité d'instructeur. En juillet 1961, il a été nommé commandant de la 35e Unité dentaire de campagne en Europe. A son retour au Canada, il entrera au service de la Direction des services dentaires.

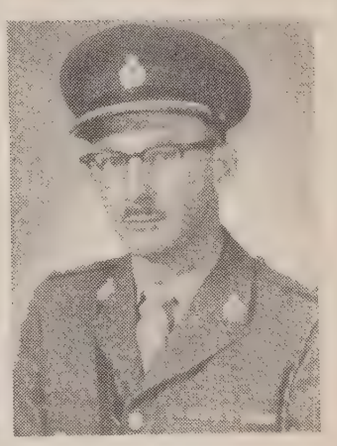


Col. R. B. Jackson



Lt-col. C. M. Cornish

Lt-col. J. C. Brick



Lt-col. J. G. Butler

Lt-col. W. W. Anglin

Lt-col. L. G. Craigie

Le lt-col. J. C. Brick est né à Windsor (Ont.). En 1949, il obtient son diplôme en chirurgie dentaire à l'Université de Toronto. Depuis, le lt-col. Brick a servi à diverses bases de l'Armée, à des bases aériennes de l'A.R.C., ainsi qu'à la 35e Unité dentaire de campagne, en Europe. D'autre part, le 1er avril 1964, il a été nommé commandant du 1er Détachement dentaire à Ottawa, et depuis juillet, il est commandant de la 35e Unité dentaire de campagne, en Europe.

Le lt-col. C. M. Cornish est né à Ingersoll (Ont.). En 1942, il obtient son diplôme en chirurgie dentaire à l'Université de Toronto et est promu au grade d'officier dentaire, la même année. Depuis cette date, le lt-col. Cornish a servi à diverses bases de la Marine et de l'Armée, ainsi qu'à des bases aériennes de l'A.R.C., à la Direction des services dentaires et à la Brigade, en Europe. Il a été nommé principal clinicien en septembre 1961 et, depuis juillet 1964, il est commandant du 1er Détachement dentaire à Ottawa (Ont.).

Le lt-col. J. G. Butler est né à Princeton (C.-B.). En 1944, il obtient son diplôme en chirurgie dentaire à l'Université de Toronto. Depuis, le lt-col. Butler a servi à diverses bases de l'Armée, à des bases aériennes de l'A.R.C., à la Direction dentaire et en Corée. En juin 1961, il a été nommé officier dentiste de la 15e Compagnie dentaire, à Montréal, et depuis juillet 1964 il sert à bord du H.M.C.S. Cornwallis (N.-E), à titre de clinicien principal.

Fin des cours d'été

Le 6 août au Camp Borden (Ont.), les officiers-étudiants et les élèves-officiers qui terminaient leur troisième stage pratique ont marqué la fin de leur instruction d'été par un défilé. Ce défilé s'est déroulé à l'Ecole du Corps dentaire où les étudiants qui bénéficient d'une aide financière font les second et troisième stages de leur formation pratique. Les officiers en parade saluèrent le brig. K. M. Baird, directeur général des Services dentaires des Forces canadiennes.

Plus tard, le brig. Baird prenait part au dîner offert en l'honneur de ces futurs officiers dentistes, partant pour leurs différentes universités afin d'y reprendre leurs cours.

Cette année, les prix de compétence décernés pour le stage de formation pratique ont été les suivants:

Mention honorable, premier stage: à l'Ecole d'infanterie, l'élève-officier T. J. Erskine, de l'Université de l'Alberta.

Mention honorable, deuxième stage: à l'Ecole du Corps dentaire, l'élève-officier J. E. Stansfield, de l'Université de Toronto.

Au deuxième stage, les seconds étaient: les élèves-officiers W. Budzinski, de l'Université du Manitoba et H. M. Amos, de l'Université Dalhousie.

Mention honorable, troisième stage: le sous-lieutenant F. R. Cooper, de l'Université Dalhousie.

Au troisième stage, le second était: le sous-lieutenant A. F. Brothers, de l'Université Dalhousie.

Le trophée des chefs-instructeurs, troisième stage, a été offert au sous-lieutenant G. S. Zwicker, de l'Université Dalhousie.

Le major Wright à Walter Reed aux études

Le maj. J. J. N. Wright, né à Exshaw (Alb.), a été choisi pour suivre à partir de septembre, un cours de 44 semaines sur la théorie et la science des recherches dentaires, au United States Army Institute of Dental Research, à Washington (D.C.).

Le lieutenant-colonel Protheroe suit un cours sur l'administration

Le lt-col. D. H. Protheroe a récemment suivi un bref cours sur l'Orientation des normes et méthodes à l'Ecole des Magasins militaires à Longue-Pointe (P. Qué.).

Sports et athlétisme en plein air au Camp Borden

L'élève-officier J. W. Bergerman, de l'Université du Manitoba, a obtenu la moyenne personnelle la plus élevée en athlétisme, battant un nouveau record et se classant premier dans le lancement du disque, et second dans le lancement du marteau et le lancement de poids. Avec son camarade, l'élève-officer H. A. Pankratz, de l'Université du Manitoba, il faisait partie de l'équipe sportive de l'Ecole d'infanterie, qui a récolté le total des points les plus élevés aux jeux.

Le sous-lieutenant J. P. D. C. Grisé, de l'Université de Montréal, a battu un nouveau record dans le lancement du javelot.

Un officier du Corps dentaire suit un cours d'hygiène publique

Le maj. H. P. Guèvremont qui, auparavant, était en garnison à la base de l'A.R.C. à Saint-Jean (P. Qué.), suit un cours postscolaire en hygiène dentaire publique à l'Ecole d'hygiène et à la faculté dentaire de l'Université de Toronto.

Des officiers suivent des cours de formation professionnelle

Les majors T. D. Cobb, du Camp Gagetown, et J. J. Y. Turcotte, d'Ottawa (Ont.), ont été choisis, l'un pour suivre un cours de sept semaines, et l'autre, un cours d'une semaine en périodontie au United States Naval Dental School, Bethesda (Maryland). Les majors J. F. Eadon, qui se trouve avec la brigade en Europe, et G. T. Grossman, de Greenwood (N.-E.), doivent suivre des cours de huit semaines en chirurgie buccale générale et en chirurgie dentaire au Royal College of Surgeons de Londres.

Grand concours de natation au Camp Borden

Le sous-lieutenant Z. Tukums, de l'Université de Toronto, est arrivé deuxième dans la nage libre.

L'élève-officier I. C. Wambera, de l'Université de Toronto, s'est classé deuxième dans la brasse sur le ventre.

L'élève-officier F. H. Harreman, de l'Université de l'Alberta, est arrivé troisième dans la brasse sur le dos.

La seconde place a été décernée à l'équipe de natation à relais formée des élèves-officiers Tukums, Wambera, Harreman et Kipp (Corps de santé).

Un officier du Corps dentaire suivra un cours d'orthodontie

Le maj. J. H. Marion de la 35e Unité dentaire de campagne, 1re Division aérienne de l'A.R.C., à Metz (France) a été autorisé à suivre les deux premiers semestres du cours d'orthodontie à l'Université de Fribourg, République allemande de l'ouest. Ce cours commençait au début de novembre.

Nombre des dentistes au Canada • Le 1er janvier 1964 il y avait au Canada 6,103 dentistes enregistrés, dont 128 femmes.—Bureau des recherches économiques de l'A.D.C.

dentistry in the news

News from Parliament

Slogan Tells Commons About Problems of Dentistry

Joseph Slogan (P.C. — Springfield) has urged federal authorities to provide financial aid for experiments in dental prepayment plans and to give government-employed dentists a better deal. Speaking in Parliament on September 11, Dr. Slogan, a Manitoba dentist, said:

"The dental associations across this country are studying the feasibility of prepaid dental health insurance, and are doing this largely on their own. It should be incumbent upon this government to allocate funds for studies in respect of the feasibility of dental health insurance, in so far as it differs from medical health insurance and insurance principles . . . .

"I should like to ask again whether any step is being taken by the department to establish a specific dental health grant under the system of national health grants . . . . It is absolutely necessary that a specific dental health grant be made. The minister has received specific representation from the Canadian Dental Association in respect of this matter, and I should like her to give an answer . . . outlining her plans in this regard . . . .

"It is time all dental services within the government, other than military, should be consolidated under one dental head. I think it would bring about something that is very badly needed, and I refer to a uniform fee schedule. Each department has a different set of forms to be filled out and a different fee schedule, and many of the forms are extremely complicated . . . .

"I would like to make another recommendation to the minister . . . that steps be taken to see that the remuneration of professional people in government service is equivalent to that which they would receive in the private sector of the economy. Unless this is done it is hardly possible that we will find the quotas we have for professional people in government, and certainly the conditions will not attract the best people but more likely the worst. I think the people of Canada deserve something better. I think those individuals who undertake to dedicate themselves to public health in Canada, and accept government jobs, deserve better remuneration. At the same time I should like to recommend that members of the dental and medical professions should receive the same remuneration, because I see no reason why the dental field should be a step down the ladder.

"Mr. Chairman, I suggest the minister should give autonomy to the dental branch so that in the final analysis decisions regarding dentistry will come from the dental division and not have to go through a medical man. Perhaps the lack of autonomy in that field is the reason dentistry has been allocated such a low position in government services . . . .

"I should like to know what thought the minister has given to allocating money for the establishment of pilot projects in respect to prepaid dental plans rather than the profession assuming the whole responsibility."

The Association

Commission Studies Underway

Intensive studies of the Report of the Royal Commission on Health Services were begun in September by the Canadian Dental Association's special steering committee. The committee asked all councils, committees and sections of the Association to help in the study. Members of the Board of Governors were also asked to offer suggestions. Provincial dental organizations were simultaneously urged to set up similar steering committees and

submit their views to the national steering committee. The C.D.A. committee has offered to act as a co-ordinator of ideas and suggestions from across the country, although its chief responsibility is to report to the C.D.A. Executive Council regarding criticisms of the commission report. It is hoped that, by gathering opinions of members all across Canada, the committee will be better enabled to offer constructive comment on the recommendations of the commission.

Chairman of the C.D.A. steering committee, which was appointed by the Executive Council by direction of the Board of Governors, is R. A. Clappison of Toronto. He is also chairman of the C.D.A. Dental Services Committee. P. G. Anderson and W. J. Dunn of Toronto are members of the steering committee.

Canada and the Provinces

Education Fund Awards 1964 Fellowships

Four fellowships, totalling $6,000, for training dental teachers have been awarded through the program of the Canadian Fund for Dental Education. Recipients and the amounts of their awards are: G. E. Albert, Montreal, $1,200; R. G. Stephens, Halifax, $1,800; K. C. Bentley, Montreal, $1,800; and N. V. Direnfeld, Toronto, $1,200.

Dr. Albert, a 1963 Université de Montréal graduate, is currently enrolled in a master of science program at the paedodontic department of Indiana University. He will return to a teaching appointment at the Université de Montréal in September 1965.

Dr. Stephens, a 1950 University of Toronto graduate, has taught at Tufts, Manitoba and Dalhousie Universities. He is now enrolled in a master of science program at the periodontic department, Ohio State University. Dr. Stephens will return to teaching at Dalhousie University in January 1966.

Dr. Bentley, a McGill graduate in dentistry (1958) and medicine (1962), is now pursuing a two-year program at New York's Bellevue Hospital Department of Oral Surgery.

Dr. Direnfeld, a 1963 University of Toronto graduate, is attending the Department of Oral and Maxillofacial Surgery at the University of Illinois, Chicago.

The Canadian Fund for Dental Education, sponsored by the Canadian Dental Association and the Canadian Section, American Dental Trade Association, was established to aid dental education, assist dental schools, promote scholarships and studentship loans, and help recruit new students for Canada's dental schools. Applications and information about teacher training fellowships may be obtained from the Secretary, Canadian Fund for Dental Education, 234 St. George Street, Toronto 5, Ontario.

Tuition Fee Deductibility Change Proposed

Proposed changes to the Income Tax Act include reference to tuition fees. So says an item in the May 1 *Canadian Tax Service Letter*. For 1964 and subsequent years, a new section will benefit students who are completing their education by attending evening or summer courses or who are in anything less than full-time attendance at university. In all cases the tuition fee must be over $25 to qualify. Eligibility is also extended to full-time attendance at a university outside of Canada. In both cases the rule regarding the choice of any 12-month period beginning in the year is retained. Tuition fees are not deductible by the student's parent but, regardless of who pays them, they are deductible from the student's income.

1965 Canada-Wide Science Fair Slated For Winnipeg

Canada's leading science-minded girls and boys will be present at the fourth Canada-Wide Science Fair to be held at

the University of Manitoba, Winnipeg, May 6-8, 1965. H. H. Saunderson, president of the University, will be co-chairman of the Fair with W. C. Lorimer, superintendent of Winnipeg schools.

Winnipeg saw the first science fair in Canada back in 1958. Since then, it has grown to become one of the largest of the 28 regional fairs which are invited to select finalists for the Canada-Wide Science Fair, sponsored by the Canadian Science Fairs Council. The Canadian Dental Association is one of the sponsors of CSFC.

Boys and girls in 1964 produced 5,000 projects viewed by 200,000 visitors at school, district and regional science fairs. Sixty finalists were selected at 22 regional fairs to compete at the third annual national event held at the Université de Montréal where the top boy and top girl won all expense paid trips to the International Youth Science Fortnight in London, England. This double award will again be offered at the 1965 Fair in Winnipeg.

Bursaries and awards of scientific equipment will be given other competitors for outstanding projects prepared after school hours. The judges will be distinguished scientists and educators from universities, government and industry.

Rocky Mountain and Denco Open Canadian Firm

Rocky Mountain Dental Products Company of Denver and the Dental Company of Canada (DENCO) have jointly opened a Toronto-based company known as Rocky Mountain Dental Products (Canada) Limited. The new company will provide Rocky Mountain Products' services directly to Canadian dentists. Rocky Mountain manufactures products for orthodontics and dentistry for children.

Daniel Van Straten, R.D.T., formerly with the University of Manitoba, has been named Rocky Mountain of Canada's product education representative.

International Items

Announce Experiment to Train Health Profession Auxiliaries

A grant of $75,900 by the W. K. Kellogg Foundation to the New York State Department of Education will help to launch an experiment to create, perhaps in community junior colleges, programs of education for health profession auxiliary personnel such as dental hygienists and dental assistants. The aid is premised on a belief that from young men and women unable to gain entrance to institutions of higher learning, must come the sub-professionals, the technicians and the semi-skilled so widely used as auxiliaries in the health care fields.

The Canadian Dental Association takes the view that dental hygienists should be educated in a school of dental hygiene under the direction and supervision of a faculty of dentistry.

Endodontic Meeting in Spain

Barcelona will be the site of the Third International Symposium on Endodontics, May 2-8, 1965. Canadian dentists are invited to attend this meeting which is sponsored by the International Society of Endodontics. Further information may be obtained from José Navarro Ferrero, secretary general, Tapineria 10, 2°, Barcelona 2, Spain.

Australian Orthodontists Sponsor Course

The Australian Society of Orthodontists, in conjunction with the Postgraduate Committee on Dentistry of the University of Adelaide, will conduct a course on the Begg light arch wire technique at the Dental School of the University of Adelaide, May 17-28, 1965. The course will embrace lectures and laboratory exer-

Hebrew University-Hadassah School of Dental Medicine at Ein-Karem, near Jerusalem, Israel. Formal dedication ceremonies, August 11-13, were reported on p. 595 of the September Journal. The school was founded by Alpha Omega Fraternity whose Canadian and American members donated $500,000 toward the cost of construction and in support of the Alpha Omega Research and Postgraduate Centre.

cises on the basic principles and clinical application of the Begg light wire technique employing differential forces. Instructors include P. R. Begg, H. D. Kesling, M. R. Sims and R. T. Williams. The fee for the course is £ (Australian) 140. Attendance is limited to 24 participants who are engaged in the exclusive practice of orthodontics. Closing date for application is December 17, 1964. Applications should be sent to the secretary, Postgraduate Committee on Dentistry, University of Adelaide, North Terrace, Adelaide, South Australia.

Oral Surgeons Meet in Copenhagen in 1965

The International Association of Oral Surgeons will hold its second international conference in Copenhagen, Denmark, June 19-24, 1965. An invitation has been extended to all dentists interested in oral surgery. The scientific program will include world authorities who will take part in symposia and lecture groups on pathology and modern treatment of oral disease and trauma. Further information may be obtained from Jorgen Rud, 2nd International Conference on Oral Surgery, c/o DIS Congress Service, 19, Sankt Peders Straede, Copenhagen K, Denmark.

North Carolina U. Offers Courses

A variety of graduate courses is being offered at the University of North Carolina School of Dentistry. A 19 months' course in orthodontics leading to a master of science degree prepares candidates for teaching or clinical practice careers. A 24 months' course in paedodontics leading to a master of science degree is also available. A 24 months' course leading to a master of science degree is offered in periodontics. A two year course in prosthodontics leading to a master of science degree meets the formal training requirements of the American Board of Prosthodontics and provides a background for teaching and research interests. Certificate courses are also available for candidates primarily interested in clinical practice. All courses begin in June 1965, except prosthodontics which begins in September 1965. Further information may be obtained from the Office of Postgraduate Instruction, School of Dentistry, University of North Carolina, Chapel Hill, North Carolina, U.S.A.

Oral Surgery Course at Kentucky

Kentucky College of Dentistry, Lexington, Kentucky, offers graduate training in

oral surgery with three-year appointments as intern, assistant resident and resident, to commence July 1, 1965.

For further information write to E. R. Costich, professor and chairman, Department of Oral Surgery, College of Dentistry, University of Kentucky, Lexington, Kentucky, U.S.A.

Dental Organizations

Fall Convention in the Kootenays

The annual fall meeting of the Kootenay Dental Society held in Trail, British Columbia, on September 19 was attended by dentists from the East and West Kootenays. A. E. Swanson, oral surgeon of Vancouver, described instrumentation and procedure in removing impacted teeth. E. Gnass, pathologist at the Trail Hospital, lectured on the histology and cytology of pre-cancerous oral lesions.

New officers of the society are O. Westrup of Cranbrook, president; J. P. Bekker of Grand Forks, vice-president; and D. R. Sortome of Kimberley, secretary-treasurer.

Manitoba Association Executive Meets in Dauphin

The dental service corporation was one of the major topics on the agenda when members of the executive of the Manitoba Dental Association held a midsummer meeting at Dauphin, August 22. This is the first time that the executive of the Manitoba group has held a regular meeting elsewhere than at Winnipeg.

'Fluoridation and Civic Affairs Night' Acclaimed in Edmonton

President K. A. Burnham launched the 1964-65 program of the Edmonton and District Dental Society with a special 'Fluoridation and Civic Affairs Night,' September 23.

Edmonton's two mayoralty candidates as well as several school board and aldermanic candidates made personal appearances and outlined their respective political platforms. William Orobko, one aldermanic candidate who is also a local dentist, urged Edmonton dentists to talk to their patients about fluoridation and to mail out letters provided by the Edmonton Fluoridation Council. He labelled fluoridation as one of the main reasons for his candidacy in forthcoming civic elections. Both mayoralty candidates added their personal support for the measure.

A record turnout of dentists and their ladies made the meeting an overwhelming success. Grant Davy, professor of political science at the University of Alberta, was an entertaining and highly efficient guest moderator at the meeting. Valuable front page and third page publicity for fluoridation subsequently appeared in the *Edmonton Journal.*

London Dentists Elect Shankman

L. V. Shankman of London, Ontario, has been elected president of the London and District Dental Society. He succeeds S. J. McParland. Other officers are R. W. Morris, president-elect; E. S. Thompson, secretary; and R. P. McCutcheon, treasurer.

C.D.A. and Hall Commission Discussed by Montreal Club

Decision-making by the Canadian Dental Association and recommendations of the Hall Report (Royal Commission on Health Services) came under critical scrutiny at a meeting of the Montreal Dental Club, September 28.

Commenting on personal impressions gained at the C.D.A. national convention in Edmonton, H. L. Mussells, Montreal, declared that authors of Association poli-

J. R. Fraser of Chester, Nova Scotia, was installed as president of the Nova Scotia Dental Association last June 27.

cy decisions are sincere and honest in their endeavours to work for the good of the profession, even though he disagrees on certain issues. But, said Dr. Mussells, more policy should originate from the 'grass roots' level of practising dentists rather than at the executive level.

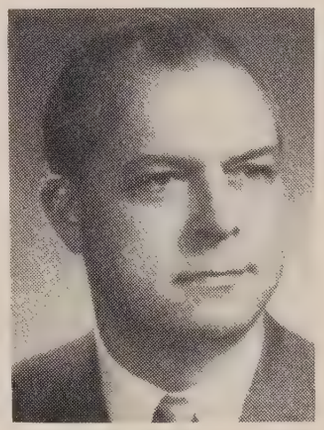
R. F. Harvey, Montreal, reported on activities of the Quebec Dental Association. The Montreal club has not yet decided on possible affiliation with the provincial organization.

A special committee of the Montreal club is studying the Hall Commission's recommendations. The committee's report, now in preparation, will deal with philosophical implications rather than evaluation of specific recommendations advanced by the Hall Commission, P. L. Samis, Montreal, observed.

J. H. Johnson, Toronto, editor of *Oral Health,* also spoke at length on the Hall Commission. He was critical of the commission's report which, in his opinion, would further lead toward a socialist state. Dr. Johnson particularly condemned the proposal to use auxiliaries for services now performed by dentists. He was also critical of methods of financing advocated for a compulsory health scheme, and he expressed reservations over statistics utilized in the Commission's report.

The dental profession should employ the best economists and sociologists to study this report in depth, Dr. Johnson declared, adding that all dentists should express their opinions through steering committees. Approval or disapproval are not enough, he asserted. Definite, concrete criticisms and suggestions are needed.

U.S. Prosthodontist Speaks to Mount Royal Society



C. M. Moore

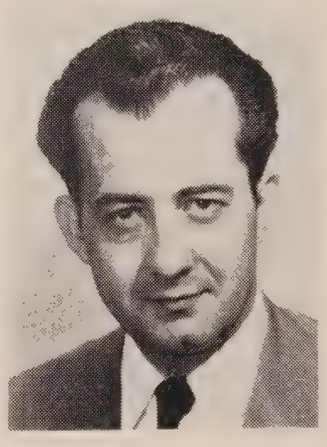
Montreal's Mount Royal Dental Society continued its 1964-65 clinical meetings on October 9 when C. M. Moore, assistant professor of prosthodontics at Farleigh Dickinson University School of Dentistry, New Jersey, presented an all-day clinic on removable partial denture prosthodontics. Dr. Moore stressed the importance of regarding a removable partial denture "as a lasting component of stomatognathic rehabilitation as opposed to its consideration as a mechanical entity or transitional prosthesis." Physiological integration of

the appliance with long-range preservation of the remaining oral structures is a prime consideration in restorative treatment involving the use of partial dentures, he asserted.

Kepron Addresses Mount Royal Dentists

Donald Kepron, Montreal, addressed the opening meeting of the 1964-65 clinical season of Montreal's Mount Royal Dental Society on September 22. A McGill University graduate who specializes in prosthodontics, Dr. Kepron chose "Aesthetics: principles, materials and problems" as the subject of his address. He discussed prosthodontic problems encountered in the anterior maxillary region, illustrated the principle of 'dentogenics' and its application to full dentures, and commented on anterior full coverage problems. Dr. Kepron drew attention to shortcomings of materials currently used for aesthetic anterior restorations.

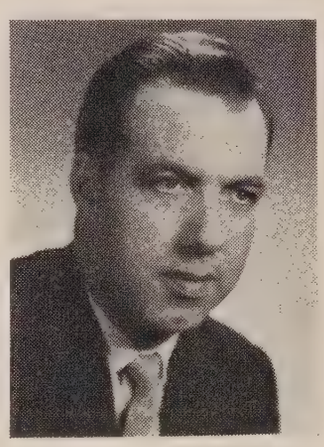
Mount Royal Meeting Features Operative Dentistry



C. M. Sturdevant

C. M. Sturdevant, Chapel Hill, North Carolina, will present an all-day seminar to the Mount Royal Dental Society in Montreal, December 14. Dr. Sturdevant, who is professor of operative dentistry and head of the department at the University of North Carolina School of Dentistry, will speak on two topics: "Improved cavity preparation for conventional and pin inlays," and "Improved inlays and temporaries via the rubber base impression and functional core."

New Brunswick Dentists Name Officers



A. D. Bona

A. D. Bona of Saint John was elected president of the New Brunswick Dental Society on September 26. Dr. Bona succeeds Blaise Duguay of Caraquet. The annual meeting of the society was held in Saint John. Elected with Dr. Bona were A. J. Coughlan of Saint John, honorary president; W. B. O'Brien of Fredericton, vice-president; and M. J. Cripton of Moncton, secretary-registrar. Dr. Cripton succeeds R. F. Sansom who had served the society for several years as secretary-registrar. Named as council members were F. A. Murdock of Fredericton; J. J. E. Alain of Bathurst; Dismas Boudreau of Edmundston; L. G. Zed of Saint John; and D. E. Williams of Moncton. Dr. Williams was elected chairman of the council.

For the seventh year, the society advocated fluoridation of community water supplies, noting that such an endorsement was in complete agreement with the recommendations of the Royal Commission on Health Services. With further reference to the Commission's report, the original study committee, under the chairmanship of J. F. Edgecombe, was requested to carry on as the provincial steering committee. The matter of the federal

interest-free loans now available to students was also discussed and referred to the Scholarship Committee to study the impact and benefits that will result.

Royal Canadian Dental Corps

Corps Association Meets at Camp Borden

Lt.-Col. L. G. Craigie represented the Director General of Dental Services for the Canadian Forces at the Sixteenth Annual Meeting of the Royal Canadian Dental Corps Association, at the R.C.D.C. School, Camp Borden, Ontario, September 17-18. Honoured guests were Vice-Adm. K. L. Dyer, Chief of Personnel, Personnel Branch, and Brig. G. H. Spencer, Chief of Individual Training, both from Canadian Forces Headquarters. On the afternoon of September 18, Vice-Adm. Dyer addressed officers of the Association.

Majors Pyne and Carter to Attend Periodontics Course

Maj. R. J. K. Pyne, R.C.A.F. Station, Comox, B.C., and Maj. W. H. Carter, Ottawa, will attend a two-week course in periodontics at the University of Michigan, November 30 to December 11.

Canadian Dental Schools

U.B.C. Dental Classes Open

The new dental school at the University of British Columbia opened in September with eight students. The eight students were selected from 65 applicants, of whom 40 met the admission requirement of three years of liberal arts. All eight are British Columbia residents. A second class of eight is expected next year, to be followed by an anticipated 40 in 1966 when the university's new dentistry building is expected to be ready.

War Memorial Awards to Montreal

For the second consecutive year winners of the Canadian Dental Association War Memorial essay awards are members of the Université de Montréal graduating class. Guy Boyer took first prize of $200 and René Bourcier, second prize of $100. Topic of the essay, open to final year students at Canadian dental schools, was "The importance of minor tooth movement as a prerequisite for restorative procedures." The awards are made from a fund established as a memorial to dentists who died in two world wars. The title for the 1964-65 competition is "Management of dental emergencies."

R. H. Johnson Joins McGill Faculty

R. H. Johnson has joined the full-time teaching staff of the Faculty of Dentistry, McGill University, Montreal, with the rank of assistant professor. Dr. Johnson will teach in the department of oral pathology and diagnosis. A native of Montreal, he graduated in dentistry from McGill University in May 1962. Subsequently Dr. Johnson spent a year of graduate study at Indiana University where he received a master's degree in June of this year.

Bigger Registration at Toronto U.

Six hundred and thirty undergraduate dental students, dental hygiene students, and students in postgraduate and graduate courses are registered in the Faculty of Dentistry, University of Toronto, for session 1964-65. This compares with 611 in session 1963-64.

The breakdown of registration is as follows: first dental year 127, second dental

year 117, third dental year 115, fourth dental year 123, special students 7, making a total of 489 dental students. There are 47 students in each of the two years of the dental hygiene course. Postgraduate and graduate enrolments are: diploma courses 25, bachelor of science in dentistry 6, master of science in dentistry 10, and occasional students 6.

Biggest ever enrolment — 721 in 1962-63 — included a preprofessional class of 125.

Prof. Grainger Attends WHO Research Meeting

R. M. Grainger, Toronto, visited Geneva, Switzerland, September 5-19, to attend a meeting convened by the World Health Organization to draft revisions for the dental section of the International Classification of Diseases, Injuries, and Causes of Death. He also assisted in planning a second meeting next spring which will outline the dental research role of WHO. A resolution passed in 1958 at the Eleventh World Health Assembly made WHO responsible for stimulating and co-ordinating research and developing research personnel. The dental unit of WHO is one of the last to assume these research responsibilities but an active program may be launched soon after the meeting of the Planning Committee in April 1965.

Eight New Full-time Appointments in Toronto

Several former part-time staff members and some recent graduates have taken up full-time appointments in the Faculty of Dentistry, University of Toronto. They include:

P. T. Smylski, professor of oral surgery and head of the department;

Morris Goldner, formerly with Connaught Medical Research Laboratories and special lecturer in microbiology in the School of Hygiene, University of Toronto, has become assistant professor of microbiology in the Faculty of Dentistry. Dr. Goldner will continue his association with the School of Hygiene;

R. C. Burgess, formerly attached to the Research Division of the Faculty of Dentistry, is now assistant professor of preventive dentistry;

M. C. Johnston has returned from graduate study at the University of Rochester. He is assistant professor in embryology and histology;

M. A. Listgarten, a 1959 graduate, has returned from Harvard School of Dental Medicine and is assistant professor in periodontics;

R. E. Echlin, a 1952 graduate, has joined the staff in the rank of assistant professor;

N. S. Taichman, a 1961 graduate, has returned from Harvard School of Dental Medicine to accept a research appointment and part-time teaching appointment.

Promotions to the rank of professor went to H. A. Hunter and W. D. MacKay; to the rank of associate professor, A. L. Posen; to the rank of assistant professor, B. K. Arora and F. G. Kellam.

Toronto's Faculty Launches Art Exhibits

The first of a series of art exhibitions went on display at Toronto's Faculty of Dentistry, September 28. Two collections — the Housser Memorial Collection and the Imperial Oil Graphics — were shown in this first exhibit. The Housser Collection consists mainly of original works of the Group of Seven. Paintings by A. Y. Jackson, Bertram Brooker, Franklin Carmichael, Bess Harris, Lawren Harris, Sr., Yvonne Housser, Arthur Lismer, J. E. H. MacDonald, Isobel McLaughlin, George Pepper, and J. W. Beatty are included. The Imperial Oil Graphics are original works by Harold Town, John Worsley, Walter Stefoff, Charles and Suzanne Dolesch, Allan Mardon, Theo Dimson, William Winter, Eric Aldwinckle, Gabriel Czakany, Albert Cloutier, and James Hill.

Both collections will be circulated for one month to areas in the dental building

where students and staff are most likely to view them. A formal opening of the arts program is scheduled for October 29 when both collections will be hung in the main faculty auditorium. Distinguished guests, on that occasion, will include representatives of the Senate and Board of Governors of the University, of the Art Gallery of Toronto, of private art galleries, and of dental societies.

Toronto U. Wins U.S. Research Contract

The Division of Dental Research, University of Toronto, has been awarded a contract by the United States Department of Health, Education and Welfare, to analyse the malocclusion data collected in the recent U. S. National Health Survey. This contract reflects strong endorsement of the work in the University-directed Burlington (Ontario) Orthodontic Research Project since the analyses to be done will follow the same pattern.

Economics

More Children Treated Under Alberta's Welfare Scheme

In 1963, 61,450 Alberta recipients of public assistance were eligible for dental services. Their dental care cost a total of $329,943 and the average cost per person treated was $26.06.

Utilization varied from a low of 8.8 per cent for older pensioners and their spouses (Old Age Assistance, Supplementary Allowance, Widow's Pension, etc.) to a high of 45.5 per cent for the dependent children of the recipients of Mother's and Social Allowances. The overall percentage of those receiving dental care was 20.6 per cent.

G. E. Decker, secretary of the Alberta Dental Association, notes that, compared to last year's experience, there has been a relatively large increase in the number of children dependants along with an increase in participation by this group.

Dental Coverage Next Under Saskatchewan Medicare?

Saskatchewan's Premier Ross Thatcher is contemplating extension of the province's existing medicare plan. In an address on June 12, reported in the *Vancouver Province,* Mr. Thatcher declared "Not only do we intend to keep hospitalization in medicare, but before I leave the premier's chair I hope the Saskatchewan scheme will include coverage for dental care and major drug costs. However, I must qualify this statement by pointing out that any significant legislation in this field can only be possible when federal assistance is available."

National Agency for U.S. Service Corporations Proposed

Creation of a national co-ordinating agency for dental service corporations was a top item on the agenda of the House of Delegates at the recent annual session of the American Dental Association in San Francisco. In making the recommendation, the A.D.A. Board of Trustees noted that "Establishment of a national co-ordinating agency for dental service corporations is essential if the benefits of this type of prepayment program are to be made more widely available and on a multi-state basis. The establishment of such an agency will result in great benefits for the public by placing dental care within the reach of all those needing and desiring it."

What's Ahead in Collective Bargaining: Dental Coverage?

A special article in *Management Review* (May 1964) on "What's Ahead in Collec-

tive Bargaining?" predicts that requests will increase at the bargaining table for newer types of insurance including coverage for oral surgery and dental services. On dental insurance, William Karpinsky, author of the article, predicted that "with some limitation on benefits, it may become as common as hospital and surgical protection over the next five years."

Dental Plan for Peace Corps Trainees

The U. S. Peace Corps last summer began a dental care program, administered by the Michigan Dental Service Corporation, for trainees attending Eastern Michigan University. Reported to be the first of its kind, the program covers the following services: full-mouth radiographs; dental examination; silicate, amalgam and acrylic restorations; extraction of nonrestorable teeth. Any other needed dental services require prior approval from MDSC. Payment is made to the dentist by MDSC at the dentist's usual and reasonable fee not exceeding the amounts listed in the schedule of maximum fees distributed by MDSC.

How to Spell Fee Trouble: Usualcustomaryreasonable

"With explosive growth in major-medical insurance, more and more policies are covering the doctor's 'usual, customary and reasonable' fee," writes J. J. Coughlin in *Medical Economics* (August 24, 1964). "No doubt many physicians find this a step toward fairer remuneration. But as legal counsel to the Multnomah County Medical Society in Oregon, I've found that those words often trigger costly misunderstandings."

But the three words don't mean the same thing, Mr. Coughlin asserts. The usual and customary fee for a given procedure may not be reasonable when the procedure turns out to be unusually complicated and lengthy. A typical example involved a plastic surgeon. He performed two skin graftings on a woman who had been severely burned. His fee: $1,100.

That seemed high to the patient's husband, so he decided to do a little checking. He called the doctor's aide and asked what the doctor usually charged for a skin grafting. Thinking in terms of a two-and-a-half hour operation, she said it would run about $300. Convinced that his pocketbook was taking a shellacking the husband headed straight for the doctor's office to make his complaint in person.

The doctor spent more than an hour explaining why he had charged what he had: the two operations took a total of 12 hours, the grafts did not take well, complications developed. In short, the doctor concluded, the operations were not usual, and his usual fee did not apply. When the husband had heard all the facts, he was satisfied that the bill was a fair one, and he paid it. But, more important, the incident brought home to the doctor the danger in using the term 'usual' loosely.

Shortly afterward, he performed an even more complicated grafting on a workman insured by the state industrial accident commission. He was well aware of the state agency's relatively low fee schedule. So, with his recent experience fresh in mind, he had the good sense to discuss the case with the commission before presenting his bill. His usual fee was $300, he explained, but in this case that fee wasn't reasonable because of the difficulties involved. After hearing the surgeon out, the agency agreed to go along with the bill: $1,900 . . . .

"Because health insurers fail to make the distinction between usual and reasonable, they don't realize that the usual fee is merely a good starting point in determining what the reasonable fee is," Mr. Coughlin warns. "If doctors are to eliminate this semantic type of 'usual, customary and reasonable,' they'll not only have to make the proper distinction themselves, they'll also have to bring pressure on insurers whose policies lump the contradictory words together."

Research

Research Conference in October

Canadian dental research workers met October 5-7 at Ste-Marguerite, P. Quebec, for the third Canadian Conference on Dental Research. At least half of the conference time was devoted to workshop sessions on the future needs of dental research, with special attention to the recent report of the Royal Commission on Health Services. Representatives came from all dental schools in Canada, the Canadian Dental Association Council on Research and the Associate Committee on Dental Research of the National Research Council. The conference was financed by grants to the Canadian Dental Association from the Associate Committee on Dental Research of the National Research Council and from the Procter and Gamble Company. Jean-Paul Lussier of Montreal headed the organizing committee for the conference.

Fluoridation

Hall Commission Calls for Fast Action on Fluorides

The Royal Commission on Health Services has called for immediate action to initiate fluoridation in every community water system. It has recommended federal grants for 75 per cent of the cost of equipment and installation.

The Canadian Dental Association had recommended similar actions at the hearings held by the Commission in its comprehensive exploration of Canada's health resources.

About one in five Canadians drinks fluoridated water — a total of 3,868,300 persons in 202 communities from Kamloops, British Columbia, to Gander, Newfoundland.

The Royal Commission's recommendations on fluoridation were as follows:

That every community water system in Canada be immediately equipped to provide, and does provide, the appropriate level of fluorides;

That the federal government provide under the Health Facilities Development Fund a grant to the provinces of 75 per cent of the cost of equipment and installation for fluoridating community water supplies;

That the Health Sciences Research Council provide for research and evaluation studies for the purpose of assessing the efficacy of fluoridation in the children's dental program;

That the federal government immediately provide for fluoridation of all water supplies in areas or institutions under its jurisdiction, viz. the Territories, the armed forces establishments where children are located, and the like;

That in rural areas where community water systems are non-existent, the public health authorities adopt means for meeting fluoride needs.

Alberta Advertises Fluoridation

Nine progressive communities in one Canadian province have pulled out the stops to advertise their fluoridated water supply.

Controlled fluoridation is proclaimed on roadside signs by Red Deer, Devon, St. Albert and Fort Saskatchewan, Alberta. Natural fluoridation is announced on signs in Alex, Lacombe, Beiseker, Blackfalds and Wetaskiwin. Strathmore has erected fluoridation signs in its new park. Appropriately one sign is nailed to a tree next to the drinking fountain.

The first sign up in Alberta was the now famous sign at Alex with its widely-publicized slogan "Water fluoridated by God."

The sign-up program was inspired by an anti-fluoridationists' demand that

In the Interest of Improved General Health as Well as Dental Health

This Office Recommends FLUORIDATION

Many Alberta physicians and dentists exhibit this pro-fluoridation sign in their offices.

towns with fluoridated water supplies erect 'warning' signs to alert travellers to stay away. This was reversed into a fluoridation promotional idea by Calgary engineer F. G. Braithwaite, who initiated the sign campaign, supported by the Alberta Dental Association.

Alberta Physicians, Dentists Promote Fluoridation

Copies of the above office sign have been sent to all physicians and dentists in the province of Alberta, reports C. R. Castaldi, professor of paedodontics, University of Alberta. The office poster was designed in consultation with the College of Physicians and Surgeons of Alberta.

Also available to fluoridation promoters in Alberta is an orange and white bumper sticker: Fluoridation is a good thing!

Few Canadians Get Natural Flouride

Only 242,000 of Canada's 19 million people have reason to believe that fluoridation is of no concern to them. They live in 153 communities where the water supply has a natural fluoride content of 0.7 ppm or more, considered to be adequate for protection against tooth decay.

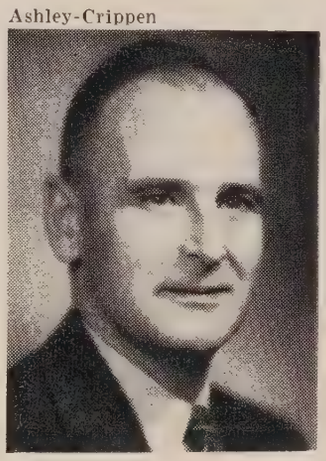
This survey on natural fluoridation in Canada was recently conducted by L. H. Bowen, executive secretary, National Fluoridation Committee of the Health League of Canada, in co-operation with provincial departments of health.

Highest natural fluoridation was recorded in one water source in Vaughan Township, Ontario, which has 2.1 ppm while another water source in the same township has no fluoride at all.

Public Health

Dawson Retires From Nova Scotia Post

Ashley-Crippen



W. G. Dawson

W. G. Dawson, Halifax, retired on October 1 after more than 14 years' service as director of dental health for the Nova Scotia Department of Health. A native of Glenholme in Colchester County, Dr. Dawson graduated in dentistry from Dalhousie University in 1925. He practised in Halifax until 1939. During World War II Dr. Dawson served with the Canadian Dental Corps, first as district dental officer for No. 6 and No. 2 Military Districts, and subsequently in Britain and northwest Europe. He retired from the Canadian Army with the rank of lieutenant-colonel. In 1950 Dr. Dawson joined the Nova Scotia health department as director of its division of dental health. The following year, after a brief leave of absence, he received the diploma in dental public health from the University of Toronto. At various times Dr. Dawson was associated with Dalhousie's dental faculty as demonstrator and lecturer—formerly in crown and bridge prosthodontics, more recently in dental public health. Dr. and Mrs.

Dawson plan to make their home at the farm where he spent his boyhood years, near Pictou, Nova Scotia.

King Named N. S. Dental Director

W. C. King, Brandon, Manitoba, has been appointed director of dental health for the Nova Scotia Department of Health. He succeeds W. G. Dawson. A native of Carbonear, Newfoundland, Dr. King graduated from Dalhousie University, Halifax, in 1949. He returned to Newfoundland, practising at Corner Brook until 1960. In 1962 he received a diploma in dental public health from the University of Toronto. Latterly, Dr. King has served as regional dental director for the Manitoba Health Department, based in Brandon.

McGoughey Becomes Halifax Director

James McGoughey, Halifax, has been appointed as first full-time dental health officer for the city of Halifax. This action follows a recommendation made by a Canadian Public Health Association Advisory Committee which last year studied Halifax-Dartmouth-Halifax County public health services at the request of local authorities (reported in the June 1964 J. Canad. D. A.).

Dr. McGoughey graduated from Dalhousie's dental faculty in 1951. During the past 13 years he has served in the Royal Canadian Dental Corps. He is presently on leave of absence at the University of Toronto where he is enrolled in the postgraduate course in dental public health.

Grimsrud Appointed to Saskatchewan Post

H. A. Grimsrud, formerly regional dental consultant with the Health Branch, Province of British Columbia, has been appointed director of dental services for Saskatchewan. He succeeds A. E. Chegwin, former director, who retired at the end of 1963.

Dr. Grimsrud graduated in dentistry from the University of Alberta in 1950.

H. A. Grimsrud

He received a diploma in dental public health from the University of Toronto in 1963.

Franklin Appointed in Manitoba

O. B. Franklin was recently appointed to the dental staff of Manitoba's Department of Health. A native of Barbados, Dr. Franklin received his early education in Regina and graduated from the Faculty of Dentistry, University of Manitoba, in 1964.

Toronto Schools Welcome Dental Hygienists

In his annual report for 1963, Toronto's dental director H. S. Grey stresses the beneficial effects upon preschool children which result from teaching and demonstration carried out by his department's dental hygienists. Dr. Grey also expresses encouragement at the growing demand for dental hygienists as speakers at home and school association meetings and to teach dental health in kindergarten to grade 6 classes of the city's public and separate schools.

Fluoridation of Toronto's water supply, which began on September 2, 1963, is expected to enhance the value of the city's dental public health program, Dr. Grey reported.

The Temporomandibular Joint

B. G. Sarnat, ed. Ed. 2. Springfield, Illinois, Charles C. Thomas, 1964. (Available from The Ryerson Press, Toronto) 260 p. Illus. $15.00

This second edition has been thoroughly revised and brought up to date with new chapters on evolution, radiology and surgery of the temporomandibular joint. The original contributors have also revised and added to their material. The result is a very interesting book that clearly correlates "the latest authoritative information . . . pertaining to the temporomandibular joint and related structures." Each contributor presents his subject in a manner entirely applicable to the general practitioner. The book is also valuable for teachers and specialists, particularly when confronted with functional evidence of disease or injury of this joint.

The opening chapter on evolution of the temporomandibular joint is based on a more extensive monograph by the same author. In it, author E. L. Du Brul cleverly summarizes how jaws, joint and associated ear parts arose in the earliest fish-like forms and developed from Agnatha (jaw-less vertebrates) through various stages to modern man. Particularly revealing is the evolutionary relationship between the jaw and the ear and the effects that postural adaptations have had on function.

In the chapter on functional anatomy Harry Sicher has added considerable information, particularly in connection with functional analysis of the temporomandibular joint. He describes the component parts and the controlling musculature and comments on their apparent purpose and function. He concludes with a much improved treatise on muscular action in various mandibular movements and offers an acceptable opinion on the much-disputed centric position of the mandible.

Of phylogenetic interest, the chapter on embryological development is beautifully illustrated and shows growth and development of the mandible through its foetal stage. This chapter is followed by two more, one on histopathology and one showing the contribution that the condyle makes to growth of the face. The author stresses the prolific growth of the condylar head required to balance development of the rest of the face. Partial or total arrest of this growth results in characteristic deformity.

These chapters are introductory to further discussion of pathological conditions of the joint. The authors describe and illustrate how deviation in occlusion and muscular physiology detrimentally influence the integrity of the articulating parts. They rightly warn the reader against "early radical treatment, meniscectomy, condylectomy, injections, etc. without a thorough investigation into the possibility of muscular dysfunction."

Radiographic examination as an aid to diagnosis and confirmation of clinical observations is described by R. M. Ricketts. He outlines development and use of x-ray equipment in the study of this particular joint. Two radiographic techniques are then described and compared to various other techniques. Ricketts also describes normal and pathological variations in radiographic appearance of the joint. He outlines four types of degenerative change related to occlusion.

A. G. Brodie, in a chapter on mandibular movements as an aid in diagnosis, sheds new light on temporomandibular joint function, especially the relation of the condyle to the glenoid fossa when the teeth are clenched and the mandible is at rest. He challenges the concept that the mandible is a lever with a fulcrum at the condyles. The musculature alone is fully capable of effecting all normal movements as evidenced by the rapid adaptations following removal of both condyles. A rest position, according to Brodie, is constant for any given person and represents an equilibrium of all the musculature attached to the mandible and of gravity. The teeth have no influence on this rest position.

A chapter on temporomandibular joint disorders, by J. R. Thompson, diagrammatically demonstrates functional movements of the condylar head of the entire mandible. This is of particular interest to those who treat 'clicking joints,' overclosure, and malocclusion generally.

The chapter on surgery, by B. G. Sarnat and D. M. Laskin, begins with surgical

anatomy of the temporomandibular joint, reviews four basic surgical approaches to the joint, and describes some of the hazards involved. Condylar growth, repair and methods of treatment are discussed. Case histories are presented that outline postoperative studies and methods for determining indications and contra-indications for treatment, particularly in prognathic, micrognathic and laterognathic reductions. Four types of temporomandibular joint arthritis are described with suggested methods of treatment. Dislocations, fractures, ankylosis and neoplasms are also discussed and methods of treatment outlined. This is followed by a brief review of some experimental studies conducted on animals.

This excellent book should be read by those who treat temporomandibular joint complications as well as those who wish to restore normal occlusion by mouth rehabilitation or by orthodontic means.

H. E. Simmons

Science and Technic of The Cast Restoration

G. M. Hollenback. St. Louis, C. V. Mosby Co., 1964. 230 p. Illus. $7.85

In the first chapter the author, George Hollenback, describes in a delightful personal vein some of the history of dental casting techniques. In following chapters he and his associates Rhoads, Baum, Mahler and Lund describe the various techniques which they recommend for cast gold restorations.

It is not possible to photograph or even to describe adequately the excellence of Dr. Hollenback's castings, but the reader will gain insight into the methods used by Dr. Hollenback. A thinking reader will surely gain from the $7.85 paid for the book. By no means can it be implied that reading the book will improve the fit of castings. Unfortunately, the science and technology of casting small pieces of metal is not highly advanced in either knowledge or materials. The process has not changed much in the last 20 years and no 'recipes' are available which will make every casting fit. This book in the dental lecture series presents a view and two explicit techniques, but much is lost if one is careless about details. 'Take care and take time to understand as much as possible about the basis of the techniques.' This is the message that Dr. Hollenback's book imparts to this reviewer.

Any criticism of the text is for the usual and unreasonable reasons. Writers of small books will always be accused of neglecting ideas or techniques dear to the heart of the reviewer. Casting techniques at present still require research, particularly into the effects of the shape of the casting and sprue upon distortion, and the changes that occur in the mould dimensions during the heating stages. Moreover, the author has neglected to . . . . But let us leave such wrangling to the experts and thank Dr. Hollenback and associates for this contribution to dental libraries.

R. H. Roydhouse

Textbook of Oral Surgery

G. O. Kruger, ed. Ed. 2. St. Louis, C. V. Mosby Co., 1964. 652 p. Illus. $14.75

This is an excellent book, well written and easy to read. The text is concise, to the point, and fairly complete. Dr. Kruger picked top men to write individual chapters. Each is an expert in the subject on which he writes.

The book is useful for all members of the profession; undergraduate, graduate and postgraduate students as well as general practitioners and specialists, especially oral surgeons. It can be picked up and read easily and should not be considered as just another volume to set on a shelf as a reference.

The addition of five chapters on exodontics to the first edition makes it a more complete oral surgery text. Other than this, the second edition is essentially the same as the first.

However, some points of criticism are noted. The illustrations are generally good, but a few exceptions occur, particularly in relation to flap design. In Figures 53 and 54 the vertical incision should start in the interproximal region where the tissue is thicker, rather than at the mid-portion of the tooth as illustrated where the cervical gingiva is thin and apt to slough leaving a void exposing the root surface. In Figure 64 the vertical incision for the extraction of an impacted third molar starts behind the second molar. Yet the flap should extend forward to at least the mesial aspect of the second molar to provide adequate access and good healing of the incision without leaving a depression.

The chapter on abnormalities of the mouth could also be more complete. The description and illustrations of fraenectomies (Figures 93 and 94) differ from the technique used by this reviewer. The muscle band should be detached from the bone and excised to prevent recurrence instead of just cutting a diamond shaped section of muscle.

Nevertheless, the book is well worth having and is probably the best current text for students.

J. Z. Gajda

announcements • avis

CANADIAN DENTAL ASSOCIATION		FÉDÉRATION DENTAIRE INTERNATIONALE	
1964		San Francisco	November 7-14
1965	Quebec City	Vienna	June 26-July 3
1966	Halifax	Tel-Aviv	July
1967	Toronto	Paris	July 7-13

Nov. 9-12, 1964	American Dental Association	San Francisco, California	Dr. H. Hillenbrand	222 East Superior Street, Chicago 11, Illinois, U.S.A.
23-29 nov., 1964	38es Journées dentaires internationales de Paris	Maison de la Chimie, Paris	M. Henri Sahel	75 rue Blanche, Paris-9e, France
Nov. 26, 1964	Annual Winter Clinic, Toronto Academy of Dentistry	Royal York Hotel, Toronto	Mrs. N. H. Montgomery	230 St. George Street, Toronto 5, Ont.
Dec. 26-31, 1964	American Association for the Advancement of Science	Queen Elizabeth Hotel, Montreal	Mr. R. L. Taylor	1515 Massachusetts Avenue, N.W., Washington 5, D.C., U.S.A.
Jan. 22-23, 1965	Mid-Winter Clinic, Vancouver and District Dental Society	Hotel Vancouver, Vancouver	Dr. T. E. Rammage	1407 West Broadway, Vancouver, B.C.

POSTGRADUATE AND REFRESHER COURSES

MANITOBA • The Faculty of Dentistry, University of Manitoba, offers a one-day postgraduate seminar in THERAPEUTICS, February 13, 1965. The seminar will be presented jointly by the staff of the Faculty of Dentistry and members of the Department of Pharmacology, Faculty of Medicine. This survey deals with the clinical applications and theoretical background of new and old drugs. Tuition fee $20. Enquiries and requests for application forms should be directed to the director, Department of University Extension and Adult Education, University of Manitoba, Winnipeg 3, Manitoba.

TORONTO • The Faculty of Dentistry, University of Toronto, offers a new type of postgraduate course covering recent advances in many aspects of clinical dentistry. The program, given Wednesdays from 2.00 to 5.00 p.m., includes: Oral Diagnosis, January 6; Periodontics, January 13; Operative Dentistry, including methods of work simplification, January 20; Operative Dentistry, January 27; Endodontics, February 3; Crown and Bridge Prosthodontics, February 10; Paedodontics, February 17; Orthodontics, February 24; Oral Surgery, March 3; and Prosthodontics, March 10. Tuition fee $100. Enquiries and applications should be directed to the chairman, Division of Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

TORONTO • The Department of Endodontics, Faculty of Dentistry, University of Toronto, offers a postgraduate course in ENDODONTICS, February 17-19, 1965. The course will include illustrated lectures on endodontic techniques. Instrument manipulation clinics will be followed by demonstration operations on patients. The course will be directed by G. C. Hare. Tuition fee $60. Enquiries and requests for application forms should be directed to the chairman, Division of Postgraduate Studies, Faculty of Dentistry, University of Toronto, 124 Edward Street, Toronto 2, Ontario.

Note • Due to lack of space the Journal cannot accommodate all announcements of foreign dental meetings and postgraduate and refresher courses. Readers are invited to write to C.D.A. headquarters for information concerning unlisted meetings and courses. Further information concerning listed meetings and courses should be sought from the sponsoring institution.

Don W. Gullett retires as Association Secretary

The heights by great men reached and kept
Were not attained by sudden flight,
But they, while their companions slept
Were toiling upward in the night.
— *Henry Wadsworth Longfellow*

On December 31 a gentleman rises for the last time from behind the desk. Quietly he slips some papers into his briefcase, then steps quickly toward the door of his office. Pausing at the threshold, he casts a nostalgic backward glance at the familiar surroundings, then turns and walks away. Thus ends a career of 24 years of distinguished service to the dental profession in Canada. It all began near Stirling, a small hamlet not far from Belleville in Ontario's Hastings County. At nearby Wellmans stands an old grist mill beside its rippling stream. Sunlight filters softly through encircling maples and elms to illuminate this pastoral scene. Here Donald Werden Gullett first saw the light of day one day in the fall of 1898, and there he passed some of his early boyhood years. The old mill still remains as a symbol of the quality of things that endure.

But a boy's life in the Upper Canada of 60 years ago was a far cry from the opportunities that beckon children of today. The land had been settled for barely a hundred years. Self-reliance was a necessity, not a virtue. Parental authority was kindly but stern. Discipline was strict, and the Sabbath was exclusively devoted to

things of the spirit. These are qualities that mould personality and character.

Young Donald Gullett went to different schools at Wellington, Ontario, and Syracuse, New York. When the family eventually settled in Picton, he attended high school there.

At the outbreak of World War I he enlisted and somehow managed to embark on a vessel bound for England. But a vigilant mother succeeded in plucking her adventurous sixteen-year-old son off the ship before it sailed from Montreal. Later attempts proved more successful, however, and the young man saw service as a gunner with the 73rd Battery during the latter part of that conflict that was to end them all.

Prior to this he had attended Peterborough Normal School where he first met his future wife, Alice. From there he went to Belleville to teach school for a while. He also dabbled in life insurance, and it is said that he became the youngest district manager of a Canadian insurance company at that time. It is interesting to conjecture where this might have led had he pursued this career. But his heart was elsewhere; and that was dentistry's good fortune.

Among the large number of freshmen who began the study of dentistry in Toronto in 1919 was Donald Gullett. This young "man of stature — manly, bold and tall" quickly gained the affection of his classmates who appointed him to their junior class executive in 1921. Graduating in June of 1923, he was married in July, and immediately took his young bride back to Picton, there to establish a home and begin a most successful practice.

Young Dr. Gullett soon became deeply immersed in the affairs of his community. His respect for prudent handling of other people's money, gained during earlier years, now found a natural outlet when he became chairman of the local school board and treasurer of the United Church. Dr. Gullett's considerable organizational talents also attracted attention among his confrères. In 1936 he was elected to the Board of Directors of the Royal College of Dental Surgeons of Ontario, and in 1940 his fellow directors persuaded him to give up his practice in order to become the College's first permanent registrar-secretary-treasurer. Two years later the Canadian Dental Association also turned to him and appointed him as its secretary. He

continued in this dual capacity until 1956 when he relinquished the Ontario position to become full-time secretary of the national Association.

Throughout his many years of service to the dental profession Dr. Gullett without question made outstanding contributions to that complex entity known as organized dentistry. Much of that time was occupied with fashioning a strong national organization for the profession in this country. To the skillful execution of this task he brought a combination of intuitive statesmanship and tenacity of purpose displayed by few. For more than two decades he filled with distinction a unique position as elder statesman and counsellor to the nation's dentists. Tireless in his dedication to the progress of dentistry, he became sought after as a member of committees and commissions and as an adviser in many lands.

Dr. Gullett's career spans an era of vast social change. Looking on the one hand at the slender human resources of Canadian dentistry and on the other at the mushrooming problems that beset the profession on every side, he quickly perceived the need for strong leadership and expert management of the Association's affairs. As he saw it, the executive officer of such an organization had to be a general manager, an administrator, a politician, a diplomat, a dentist — all in one. Yet in this position he is "but a peer among peers — he can command nothing and enforce nothing." This limitation is significant because active practitioners of any craft tend to belittle the efforts of planners and administrators. By setting a value on the parts to the detriment of the whole, they overlook the fact that their own efforts can never be the best without the magic touch of organization. This touch Dr. Gullett provided in full measure. Only a man so respected and admired could have guided the profession through those turbulent years. That he did this so successfully is due to his personal impact and high-minded vision, to the confidence and trust he inspired everywhere, and the influence he exerted in high places.

Not the least of his attributes is a capacity for working with people. His ability to interpret the feelings of others and his unfailing tact made him the trusted confidant of countless dentists. Others have been impressed by his unique aptitude for the duties of his high office and the good nature which he never ceases to apply

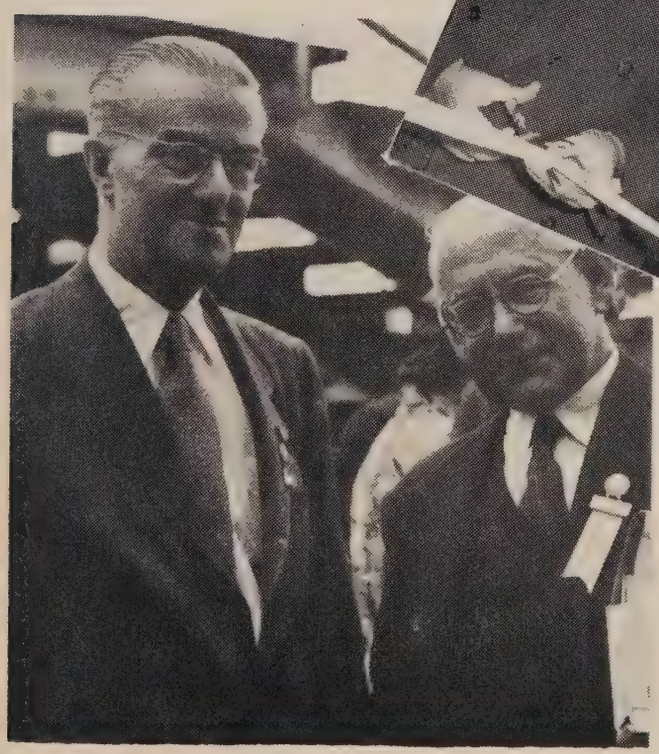
Agnes Gullett, Dr. Gullett's daughter-in-law, painted this portrait of the old mill at Wellmans where Dr. Gullett was born. The third form class picture below shows Dr. Gullett as a student at Picton Collegiate Institute, 1915-16 • Le vieux moulin à Wellmans, Ontario, lieu de naissance du Dr Gullett. Tableau exécuté par Mme Agnes Gullett, belle-fille du Dr Gullett. En bas, le Dr Gullett en 11e année au Collège de Picton, 1915-16.

Miami 1947

San Francisco 1949

Opening of C.D.A. Headquarters 1952 • Ouverture de l'immeuble du secrétariat de l'A.D.C. en 1952.

Telegram



London 1950

to it. Dr. Gullett's talent for enlisting the collaboration of those about him has gained legendary proportions. His ability to encourage and stimulate others is perhaps the greatest of his many talents. With his quick and comprehensive mind he has always seen problems in broad scope and could manipulate ideas as well as people. Innumerable are the proposals which have helped the profession, that are attributed to sundry committees, but which in fact originated from Dr. Gullett's keen and analytical mind.

Naturally, such a distinguished career also had its quota of trials and tribulation. In the course of one presidential tour, for example, when Dr. Gullett accompanied former president P. G. Anderson on an official visit to the Newfoundland Dental Society, inclement weather forced them to land at Gander and take their chances with scores of other stranded travellers who besieged the railway station seeking onward passage to St. John's. Immediately ahead of them was an attractive young mother, burdened with an impossible array of baggage, who attempted to steer her not inconsiderable young brood toward the station ticket office. There she planted her youngest upon the counter; but, alas, the hapless infant rolled off! Ever on the alert, Dr. Gullett sprang to the rescue and gathered up the babe while Dr. Anderson manfully shouldered bags and baggage. Together these two stalwarts escorted the distressed family aboard a crowded train. Dr. Gullett even secured a berth for the lady, and for this she rewarded him with the privilege of attending to the routine wants of her baby. Suffice it to say that Dr. Gullett had to shepherd mother, children, baggage and all to St. John's, there to confront the raised eyebrows, the probing questions and sceptical sympathy of his island dental hosts.

There was another occasion when incumbent president H. W. Reid and Dr. Gullett were detained in the nether regions of a small Brooks, Alberta, hostelry. This form of protective custody, their hosts R. A. Rooney and R. R. McIntyre assured them, was necessary in order to shield them against a highly contagious local malady. This dreaded infection, popularly known as duck hunter's fever, claims an inordinate number of victims among susceptible visiting eastern dignitaries in that part of the country. During acute exacerbations these unfortunates abandon their wonted tasks and disappear

Edmonton 1954

Dalhousie University 1958

◀ C.D.A.-A.D.A. conference in Chicago 1963 • Conférence A.D.C.-A.D.A. à Chicago en 1963.

into the great outdoors from whence they can only be retrieved with the utmost difficulty. Heroic measures are regarded as imperative to avert such a calamity, and Westerners gleefully prescribe an appropriate regime to any unsuspecting eastern tenderfoot. Such misfortunes would surely try the patience and erode the soul of a saint; but Dr. Gullett weathered these escapades with aplomb.

Typical, too, is his view that his individual merits were a minor factor in the many honours bestowed on him. These he modestly ascribes to the office he holds, preferring to interpret them as direct compliments to the dental profession in general, and in particular to organized dentistry in Canada as represented by the Canadian Dental Association. Few will want to share in its entirety this view of the man who became a national — and international — figure.

But we can only judge a part of what Dr. Gullett has achieved during the past 66 years. The rest will have to wait until a later date. For, although retirement ordinarily denotes relinquishing the burden of a lifetime task well performed, for Dr. Gullett it marks but the start of a new venture. And it is fitting that this remarkable man, with his love of good books and deep appreciation for the meaning of the past, has undertaken to compile a history of Canadian dentistry. The esteem and warm affection of more than 6,000 colleagues are with him as he addresses himself to this noble task. *F.H.C.*

Don W. Gullett prend sa retraite

A la fin de l'année 1964, le docteur Don W. Gullett quitte le poste de secrétaire de l'Association dentaire canadienne, après 24 ans de loyaux services rendus à la profession dentaire de notre pays.

Enumérer les progrès qu'a accomplis notre Association sous son égide, dans toutes les sphères où s'infiltre un organisme national, serait une tâche fastidieuse. Sa carrière peut se résumer en une phrase ou deux : il a accepté la fonction de secrétaire en 1942, à une période où notre Association en était à ses premiers balbutiements ; il la laisse un groupement professionnel fort, bien organisé, influent, prospère.

Je voudrais plutôt que d'appuyer sur les réalisations extraordinaires de notre Association, depuis un quart de siècle, dire quelques mots sur le type d'homme qu'est Don Gullett. Des contacts et une fréquentation qui se sont échelonnés durant une vingtaine d'années m'ont permis de connaître la personnalité intime du secrétaire, en dehors des réunions officielles et des attitudes publiques.

La sincérité a toujours été sa qualité dominante. Tous ceux qui ont eu des échanges avec lui — même le petit nombre de ceux qui avaient des opinions différentes des siennes — lui reconnaissent une franchise qui ne s'est jamais démentie tout au cours de sa carrière. Ses rapports avec ses confrères se sont toujours effectués dans une atmosphère de bonté. Derrière la façade du secrétaire, il y avait toujours un sens d'humanité très profond.

Son attitude envers les dentistes de langue française a toujours été sympathique. Il m'a confié à plusieurs reprises que son éducation primaire reçue à Wellington, Ontario, le prédisposait, au début de

son secrétariat, à avoir des impressions assez défavorables envers les canadiens français. Mais à les fréquenter, le docteur Gullett les a d'abord connus, ensuite il les a aimés et admirés. Il avouait que les latins que nous sommes ont une façon de raisonner qui échappe aux anglo-saxons. Les français, disait-il s'appuient sur des principes pour étayer leur raisonnement, tandis que les anglais accumulent des faits pour ensuite en tirer des conclusions ou des principes. Il enviait aux confrères de langue française leur philosophie et leur logique.

Don Gullett a une mémoire phénoménale qu'il a développée à force d'efforts. On se souvient d'un fameux petit cahier noir dans lequel il notait, tous les soirs, les idées générales qui avaient été émises au cours de la journée, soit dans des réunions de comités, soit dans des conversations ou qu'il avait lui-même pensées.

Il fut en grande demande comme conférencier, comme membre de commissions ou de comités, comme conseiller dans presque tous les pays où l'on parle l'anglais. Des universités lui ont conféré des honneurs, en Europe, au Canada et aux Etats-Unis. Des associations et des organismes dentaires du monde entier lui ont décerné des titres honorifiques. Il était une voix écoutée au sein des affaires dentaires internationales; sa participation étroite au travail de la Fédération dentaire internationale n'est pas prête d'être oubliée. De même nos voisins des Etats-Unis sont venus solliciter ses services quand ils entreprirent leur enquête gigantesque, il y a quelques années, dans tous les secteurs d'activités dentaires du pays.

Il était le prototype du secrétaire exécutif. Je le vois encore, assis près du président, au cours des délibérations du Conseil des Gouverneurs de l'A.D.C. Bien rarement, il donnait son avis sur les sujets en discussion, à moins d'y être prié par le président. Et alors, Don Gullett, cet homme qu'on a surnommé "M. Dentisterie" parce qu'il connaissait à fond tous les problèmes de la profession dentaire, non seulement au Canada, mais aussi à l'étranger, exposait son opinion sans passion et avec clarté et logique. Jamais en assemblée délibérante, il n'a imposé de décision, ni dicté une ligne de conduite. Il laissait à ceux qui doivent établir les politiques, c'est-à-dire aux Gouverneurs, la tâche de décider librement des attitudes à prendre.

Il se contentait d'éclairer la question, sans suggérer de directives, et d'exécuter les décisions prises. Voilà un rôle de secrétaire rempli à la perfection!

Il fut un secrétaire doué d'une capacité de travail extraordinaire. Il avait un sens inné d'exécution et de flair pour s'entourer d'assistants effectifs. Il avait aussi une qualité naturelle pour se créer des amis et inspirer la confiance.

Tels sont quelques aspects de l'homme que fut pour l'Association, Don W. Gullett. Il laissera pour l'histoire de la profession dentaire du Canada ses chapitres les plus palpitants. Sa place sera difficile à combler, mais l'Association, en se choisissant un nouveau secrétaire dans la personne du docteur William McIntosh, se donne un autre bon serviteur de qualités peut-être différentes, mais animé d'un dynamisme et d'un talent hors pair.

En terminant, je reprends des paroles que prononçait en français notre confrère Louis Bernier, au cours de la dernière assemblée du Conseil des Gouverneurs à laquelle assistait le docteur Gullett:

"La contribution que le docteur Gullett a apporté à la dentisterie au Canada et à l'étranger est incommensurable. Notre profession lui est redevable de directives éclairées dont elle bénéficiera longtemps. Le rapport qu'il nous soumet en témoigne et est un guide précieux des objectifs que la profession doit atteindre dans les années à venir. L'énoncé de ces principes demeurera un témoignage du dynamisme, de la clairvoyance et de la sagesse dont le docteur Gullett a fait preuve pendant ces longues années de dévouement à la direction de notre Association.

G.de M.

articles

Effect of class II amalgam restorations on health of the gingiva: a clinical survey

J. R. Trott, B.D.S. (Adelaide), and Afsar Sherkat, D.D.S. (Tehran), Winnipeg, Manitoba

Examination of 82 first-year medical and dental students at the University of Manitoba revealed a correlation between gingival disease and class II amalgam restorations with overhanging margins. In seven individuals there was more gingival disease in those who had good amalgam restorations on one side of the mouth and no amalgam restorations in contralateral teeth.

▪

L'examen des dents de 82 étudiants de 1ière année en médecine et en chirurgie dentaire de l'Université de Manitoba a montré une corrélation entre les affections gingivales et la présence de surplus gingivaux dans des restaurations de classe II en amalgame. Chez sept sujets, l'examen a révélé des affections gingivales plus nombreuses du côté où ils avaient de bonnes restaurations en amalgame que de l'autre côté où il n'y avait pas d'obturation.

Ever since Black (1908)[1] stressed the need for "extension for prevention," cervical margins of restorations have been extended below the free gingival margin. There are three problems associated with this practice.

First, under normal clinical conditions it is almost impossible to finish the margin flush with the tooth so as not to create a likely site for plaque formation and bacterial stagnation. Such a site will cause gingival irritation and subsequent chronic gingivitis. Zander (1957),[2] while placing various restorations on the buccal surfaces of monkeys' teeth, extended the gingival margin below the free gingival cuff. Later histological examination revealed gingival shortages or overhangs of the restorative material of about 0.2 mm. in most of the 20 restorations placed.

The second possibility is that the restorative material may act as a foreign body in the gingival cuff area and cause a chronic gingivitis. Several recent histological studies have tested the effect of various filling materials on the gingiva.

From the Department of Periodontology, Faculty of Dentistry, University of Manitoba, Winnipeg.

Zander (1957)[2] showed that both amalgam and silicate restorations cause very similar and marked inflammation in the gingival tissues. Although clinical findings were essentially negative, it is interesting that histological changes were quite marked. Histological evidence of a chronic inflammatory reaction was similarly observed by Waerhaug and Zander (1957)[3] when self-curing acrylic restorations were placed below the gingival margin. The possibility that the rough surface of the restorations may produce the local irritation rather than the material itself was investigated by Waerhaug (1956).[4] Enamel in the subgingival space was first roughened by coarse diamond stones. Later histological examination showed complete re-adaptation of a healthy gingival cuff to the rough surface of the enamel with little, if any, inflammatory response. Waerhaug points out, however, that a rough surface may predispose to the retention of plaque and bacteria in the subgingival space. He claims that these factors probably cause the inflammatory reaction in the gingiva.

The third problem is the recurrence of caries at the gingival margin of restorations. How real or imaginary this problem may be is hard to tell as clinical investigations of this type are particularly difficult to control.

Chronic marginal gingivitis is usually initiated by local irritating factors. This is axiomatic. But it is often difficult to determine to what degree a local factor may affect the inflammatory response in the gingiva. Beagrie and James (1962)[5] have recently questioned the effect of posterior tooth irregularity as an aetiological factor in chronic gingivitis. They could find no apparent association between gingival disease, axial inclination, or displacement of the teeth. In fact the gingiva around rotated teeth appeared to be less susceptible to disease. Hoover and Robinson (1962),[6] while testing the effectiveness of electric powered toothbrushes, found no correlation between the amount of plaque present on the teeth and the incidence or severity of gingivitis. This finding is contrary to that of Lõvdal et al (1961),[7] but it does show that it is difficult to be adamant about common clinical experiences.

TABLE 1 Age and sex distribution of study participants.

Subjects	Age		
	20-25	26-30	Combined
Male	61	13	
Female	3	5	
Total			82

Overhanging amalgam restorations have long been regarded as a cause of localized chronic gingivitis which may subsequently develop into a marginal periodontitis; as a local aetiological factor they rank high in most textbooks on periodontics. As far as we know this common clinical association has never really been proved.

The purpose of this investigation was to disclose whether class II amalgam restorations with an overhanging gingival ledge or restorations with clinically satisfactory margins are associated with a greater degree of pathosis in the adjacent gingival papilla.

Materials and methods

Eighty-two male and female subjects, 20-30 years of age, who had received regular dental care, were examined for this investigation (Table 1). In this age range caries activity starts to decline. It is virtually impossible to expect a patient to know with any degree of accuracy when a particular restoration was placed. But people who have had regular dental treatment are likely to have had restorations in the mouth for approximately the same period of time. Selected participants had to have bicuspids and molars containing class II amalgam restorations and with no plunger cusps, no rotated or displaced teeth in the areas to be examined, no subgingival calculus, and good oral

hygiene. Any single one of these factors can initiate a localized gingival inflammation, and it is virtually impossible to gauge their relative influence. These criteria eliminated from our study patients attending the University of Manitoba Dental Clinic. Participants were therefore selected from volunteer first-year medical and dental students. This group may give a biased result because they are more conscious of dental health than any other group we are likely to examine. But the bias in all probability is on the conservative side. For this reason we felt that it would be worthwhile to proceed with our examination. We examined the interproximal surfaces of the posterior maxillary and mandibular teeth from the mesial aspect of the first biscuspid to the mesial aspect of the second molar. The condition of the adjacent papillary gingiva was noted. The condition of the interproximal gingiva adjacent to natural tooth surfaces, adjacent to a good amalgam restoration with no detectable overhanging gingival ledge, and adjacent to an amalgam restoration with a detectable overhanging gingival ledge was recorded. The gingival margin of the amalgam restorations had to lie apical to the papillary gingiva. Presence of an overhanging restoration was determined with a fine Briault probe. The gingival crevice was examined with a flat, blunt pocket measuring probe. A simple scoring system was employed.

Disease was judged to be present if the blunt probe produced haemorrhage when it was gently inserted to test the depth of the gingival crevice. For recording purposes the tissues were considered healthy if no haemorrhage occurred and if the gingival papilla was firm and of normal colour.

TABLE 2 Comparison of gingival disease in 35 participants with amalgam restorations.

Outcome 1: pathosis predominates beside good restorations	9
Outcome 2: pathosis predominates beside overhanging restorations	21
Outcome 3: equal distribution of pathosis beside good and overhanging restorations	5
Total	35

The examination was conducted on purely clinical grounds. No biopsies or radiographs were taken. The main problem with which we were concerned was whether or not there were clinical changes in the gingiva of a sufficient magnitude to show differences between one type of amalgam restoration and another.

Results

There were two main methods available for analysis of the results.

One method compares gross disease scores of the gingiva in subjects with overhanging amalgam restorations, with good amalgam restorations and with unfilled teeth. This method can be biased by the disease score in a few patients, and does not necessarily reflect the true picture. A patient may have a gingivitis that is unrelated to restorations placed. The resultant score would not be indicative of the effect of restorations on the gingiva.

The other method compares good and overhanging amalgam restorations in the same individual.

The number of persons with either type of restoration were grouped according to whether disease was present or not. Thirty-five out of 82 individuals examined had disease while 47 did not show sufficient disease to be recorded on clinical examination. In the 35 individuals with disease and amalgam restorations we then assessed the incidence of gingival disease associated with good and overhanging restorations in the following manner. In each individual the number of diseased and non-diseased gingival areas associated with good and overhanging restorations were compared one with the other. There are three possible outcomes of this comparison. First, the gingival disease can have a greater inci-

TABLE 3 Classification of study participants according to number of tooth surfaces with amalgam restorations and according to presence or absence of gingival pathosis.

Subjects	Number of tooth surfaces with amalgam restorations		
	0-9	10-15	0-15
With gingival pathosis	17	17	
Without gingival pathosis	28	20	
Total			82

dence beside good restorations than beside overhanging restorations (Outcome 1). Second, disease incidence can be greater beside overhanging restorations than beside good restorations (Outcome 2). Third, there may be no difference at all in the disease score (Outcome 3). Table 2 shows the results of this comparison in the 35 individuals with gingival disease. If overhanging restorations have no effect on the gingiva one would expect an equal distribution of individuals with good and defective restorations, that is 15 and 15. When testing this hypothesis of equal distribution we find that $p = 0.02$. Therefore there is a significant association between gingival disease and overhanging restorations.

A check was made to see if the results could have been biased by the number of gingival areas examined adjacent to either good or overhanging restorations. For this purpose the 82 examinations were listed in a numerical sequence corresponding to the number of gingival areas examined. But we found no difference in the number of individuals who had gingival disease between the top 41 and the lower 41 subjects.

It would have been advantageous if, subject to the originally established criteria, we could have included a number of patients without amalgam restorations who had both disease and no disease present. Then we could have compared the effect of amalgam restorations per se on gingival disease. But such individuals are practically non-existent in a modern white population. Therefore we had to compare contralateral situations in the same individual, that is compare the disease score in the same mouth where there was no restoration on one side and a restoration on the opposite side. If disease incidence is similar on both sides of the mouth (no disease present or the same amount of disease present) then no comparison can be made. However, we could make a comparison in seven out of 82 individuals. In all seven disease was present on the side where a restoration was situated. There was no disease present where there was no restoration. This suggests that amalgam restorations per se may be related to the presence or absence of gingival disease. If there had been no correlation, one would have expected an equal number of individuals to show disease associated with and without a restoration.

It is also possible that there is an increased likelihood of gingival disease as the number of tooth surfaces with amalgam restorations increases. But the chi-square test revealed no apparent difference when we classified subjects according to the number of surfaces with amalgam restorations in the diseased and healthy group (Table 3).

Discussion

Forty-seven out of the 82 individuals examined had gingival disease as defined in this study. This figure may seem high.

On the other hand subjects for this study came from a very selected group. Moreover, the original study criteria ruled out a number of factors which can cause gingival disease, either alone or in combination. Furthermore, our method of measuring gingival disease may have been too crude to show up the true incidence of gingival disease in this group. This was not the object of the exercise. We merely wanted to compare one kind of amalgam restoration with another.

Despite these apparent drawbacks it seems that there is a greater incidence of gingival disease adjacent to overhanging restorations than adjacent to good restorations in the same individual. Also there is some slight evidence that the presence of amalgam below the gingival margin is undesirable for the health of the adjacent gingival tissue. The fact that many subjects had either no disease present or no difference in disease on both sides of the mouth should not let us overlook the possibility that amalgam when placed below the gingival margin may be deleterious to the health of the gingiva.

That other factors, such as the patient's natural resistance to disease, the size of the interdental spaces, and the effectiveness of good oral hygiene may have biased the results cannot be denied. Nevertheless, there are usually several local irritating factors which can cause gingival disease. If amalgam restorations are one of these factors, as this investigation shows, then perhaps we should question the desirability of extending such restorations below the gingival margin regardless of whether they have good margins or overhanging margins.

Conclusions

1. The interproximal gingiva was examined in 82 male and female subjects between the ages of 20 to 30 years who had interproximal amalgam restorations in molars and bicuspids and who had no plunger cusps, no subgingival calculus, no rotated or displaced teeth and good oral hygiene.

2. Thirty-five of the 82 subjects with restorations examined had gingival disease.

3. Analysis of these figures revealed a correlation between gingival disease and restorations with an overhanging cervical margin.

4. In seven individuals there was more disease in those who had good amalgam restorations on one side of the mouth and no amalgam restorations in contralateral teeth.

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Faculty of Dentistry,
University of Manitoba

Clinical experience with a corticoid-antibiotic preparation in conservative treatment of the pulp

P. Olsen, Tandlaege, Copenhagen, Denmark

Promising clinical results were obtained with a corticoid-demethylchlortetracycline preparation (Ledermix Dental Compound) in 370 endodontic cases of hyperaemia, pulpitis or apical periodontitis. This new preparation may be useful in conservative endodontic treatment.

▪

On a obtenu chez 370 patients des résultats prometteurs en clinique en utilisant une préparation de corticoid - demethylchlortetracycline (Ledermix Dental Compound) pour des cas d'hypérémie, de pulpite ou de périostite apicale. Ce médicament peut être fort utile dans les traitements conservateurs d'endodontie.

Because of the importance of preserving pulp vitality and the obvious drawbacks of radical methods of therapy, such as pulp extirpation, increasing attention has been paid in recent years to the use of topical medications in pulpitis and apical periodontitis. A considerable amount of the published work on this subject has been produced by Schroeder and Triadan in Berne, Switzerland. As these authors stated in a recent review,[1] the older corticosteroids (cortisone, hydrocortisone, prednisone) were tried by several investigators and gave modest results. A stronger anti-inflammatory effect was obtained when triamcinolone was used, and various broad - spectrum (tetracycline) antibiotics were added because of the possibility that the natural defence mechanisms of the tissue might be impaired by corticoids.

Several corticoid-antibiotic preparations, which differed not only in the concentration of active ingredients but also in the type of vehicle and the mode of application, were clinically tested by Schroeder and Triadan.[1,2] Each of these preparations was tested in a water-soluble (paste or cream) form and a hardening (cement) form. After accumulating data on a total of approximately 5,000 teeth (treated by them or by colleagues who were given the preparations for investigative purposes), Schroeder and Triadan concluded that the preparation known as Ledermix (American Cyanamid Company) was the most effective. Only four out of 419 teeth with pulpitis, and three out of 65 teeth with periodontitis, failed

to respond well to Ledermix.[2] The period of observation was relatively short, the average being 21 days and the maximum 213 days.

The effectiveness of this new form of therapy has been confirmed by other investigators.[3-6] Rowe[5] reported that all but nine of 245 teeth remained vital and symptomless when examined four to eight months after treatment with Ledermix. The purpose of the present study was to determine the usefulness of Ledermix in a busy dental practice and to observe the long-term effect of this therapy on vitality and symptoms.

Method and materials

This preliminary report concerns 370 patients — 158 males and 212 females — whose teeth were treated with Ledermix to date. The distribution of patients by age and by diagnosis is shown in Table 1. Three classifications were used: (1) pulpitis and pulp exposure; (2) hyperaemia without pulp exposure; and (3) pulp gangrene and apical periodontitis. 'Diagnosis' in this paper always refers to clinical diagnosis. We are fully aware of the lack of definite correlation between clinical and histological diagnoses, as pointed out by Mitchell.[7]

Ledermix Dental Compound is supplied as three separate units: a 3 Gm. tube of paste, a 2 Gm. bottle of powder, and a 5 ml. dropper bottle of hardener (catalyst). Ledermix paste consists of triamcinolone acetonide in a concentration of one per cent and the antibiotic demethylchlortetracycline calcium (equivalent to three per cent demethylchlortetracycline hydrochloride) in a water-soluble cream consisting of triethanolamine NF, calcium chloride USP, zinc oxide, sodium sulphite (anhydrous), polyethylene glycol 4,000 USP, and distilled water. Ledermix powder is a hardening cement powder containing 0.67 per cent triamcinolone acetonide, two per cent demethylchlortetracycline hydrochloride, zinc oxide USP, Canada balsam, rosin NF and calcium hydroxide USP. The hardener or catalyst for use with Ledermix powder is a solution consisting of eugenol USP and rectified turpentine oil NF. A similar product, to be known as Aristomix, has been submitted for approval to the Food and Drug Directorate of the Canadian Department of National Health and Welfare and to the United States Federal Drug Administration. It is understood that this product will not become commercially available in North America until government approval is granted.

In all instances of exposed pulp, Ledermix paste was applied with a small cotton pledget and the cavity was closed with a temporary filling of zinc oxide-eugenol. If pain relief was not complete this procedure was repeated (see Table 2). On an average of four to seven days later the cavity was re-opened and the cotton pledget was removed. The pulp exposure was covered with Ledermix powder plus hardener by mixing one drop of the hardener with sufficient powder to obtain a homog-

TABLE 1 Distribution of patients by age and diagnosis.

Age	No. of patients	No. of patients by diagnosis		
		Hyperaemia	Pulpitis	Periodontitis
Under 10	11	2	9	0
10-29	132	37	90	5
30-49	115	23	75	17
50-69	94	16	64	14
Over 70	18	6	11	1
Total	370	84	249	37

TABLE 2 Results with Ledermix in pulpitis of variable duration.

Pain relief with Ledermix paste (clinical success)			Failure (extraction)
No. of applications made	Onset of relief		No. of teeth
	Time interval	No. of teeth	
one: (227 teeth)	½ hr.	178	
	1-2 hrs.	28	2
	1 day	19	
two: (16 teeth)	0-1 hr.	4	
	1-3 days	8	4
three: (6 teeth)	1-3 days	3	3
Total 249		240	9

TABLE 3 Effect of Ledermix on pain in hyperaemia.

Status of pain	Total No. of teeth	Application of Ledermix*	
		Paste and cement	Cement only
Not previously present	17	11	6
Complete relief within 2 hours	17	14	3
Complete relief within 1 day	50	32	18
Total	84	57	27

*Duration of hyperaemia (before application of Ledermix) was variable; in most cases it was necessary to apply the paste first, while in some the cement could be used immediately.

enous mixture of creamy consistency. This cement, which hardens rapidly, was applied with an amalgam plugger. An insulating hard cement was then applied and covered by a permanent filling.

In cases of hyperaemia without a pulp exposure, the above procedure could be used or the Ledermix cement could be used without the previous treatment with Ledermix paste (as indicated in Table 3).

At each visit the patient was thoroughly questioned about the affected tooth, and the vitality of the tooth was determined either by means of a vitalometer (particularly in doubtful cases) or by the following procedure (as many patients objected to the use of the vitalometer): ethyl chloride on cotton wool was applied to the crown, followed by the application of half-melted gutta percha to the crown. The same procedure was then performed as a control on a vital tooth containing a filling, and the two reactions were compared. When the affected tooth did not react, radiographs were taken at each visit.

In cases of apical periodontitis the pulp chamber and canal were opened. A broach was cautiously inserted into the canal and the gangrenous tissue was removed by a scraping motion, care being exercised never to exert apical pressure. The pulp chamber and root canal were then rinsed with three per cent hydrogen peroxide. The canal was enlarged to the apical foramen with a reamer or a Beutelrock bur. The chamber and canal were rinsed

TABLE 4 Interval between last Ledermix treatment and follow-up examination in hyperaemia and pulpitis.

Interval in months	No. of teeth examined on follow-up and found to be vital*			
	Hyperaemia		Pulpitis	
	No.	%	No.	%
2-5	24	31	64†	29
6-11	36	47	107	48
12-15	11	14	35	16
16-25	6	8	15	7
Total	77	100	221	100

*Follow-up was not done for 35 teeth.
†Three teeth were found to be non-vital at follow-up examination.

again. Ledermix paste or lotion was then applied on a paper point and the cavity was sealed. The latter procedure was repeated every three to four days until the canal was dry. Usually the pain disappeared very quickly, but in cases of acute infection, with severe pain and fever, penicillin was given orally, 300,000 I.U. three times a day for three days. The root canal filling was done with a paste consisting of zinc oxide-eugenol and sulphathiazole, and the canal was sealed with a gutta percha point.

Results

As shown in Tables 2 and 3, the relief of pain was rapid in the majority of cases, and in pulpitis it frequently occurred within minutes after application of Ledermix paste. The seven failures in which the paste had to be applied two or three times can probably be attributed to an error in the initial diagnosis (Table 2). Follow-up examination of a total of 298 pulpitic teeth for varying periods of time (mostly six to 12 months, but in six cases for two years) showed a loss of vitality in only three teeth, or a failure rate of about one per cent (Table 4). In 37 cases of periodontitis three teeth had to be extracted (Table 5), but all teeth examined one to 14 months after treatment were in satisfactory condition (Table 6). No side effects were noted during this study.

Ledermix contains a tetracycline which, although a broad-spectrum antibiotic, does not act on all the micro-organisms found in root canals. We did not take cultures from our periodontitis patients as this procedure is of questionable value due to

TABLE 5 Results with Ledermix paste (or lotion)* in periodontitis.

No. of applications needed before root canal filling	Total No. of teeth	No. of teeth treated by	
		Root canal filling	Extraction (made necessary by recurrence of symptoms)
1	2	2	0
2	27	25	2
3	8	7	1
Total	37	34	3

*See text for composition of lotion.

TABLE 6 Interval between filling of root canal (preceded by Ledermix treatment) and follow-up examination in periodontitis.

Interval in months	No. of teeth*
1 - 5	12
6 - 9	9
10 - 14	11
Total	32

*All teeth were in satisfactory condition; follow-up of five teeth was not done (this included two successfully treated and three extracted teeth).

the technical difficulties involved. It is, however, possible that the three teeth which had to be extracted because of recurrent symptoms in this group represent yeast infection (occasionally found in root canals) which did not respond to tetracycline therapy.

We are continuing our investigation by extracting some of the Ledermix-treated teeth for histological studies at various intervals after the initial therapy. The results of this investigation will be reported at a future date.

Conclusions

Promising clinical results have thus far been obtained with a corticoid-demethylchlortetracycline preparation (Ledermix Dental Compound) in 370 endodontic cases of hyperaemia, pulpitis or apical periodontitis. These results suggest that this new preparation may be useful in conservative endodontic treatment.

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14 Osterled

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Paedodontics as a specialty

K. W. Davey, D.D.S., M.Sc.D., Toronto, Ontario*

Paedodontics should be recognized as a specialty. This will permit the training of a small number of paedodontic specialists to provide consultant, teaching, research and some hospital paedodontic services not available from other practitioners. General practitioners and dentists who limit their practice to dentistry for children should continue to provide the major portion of professional dental care for children. The author describes the requirements of undergraduate paedodontic instruction. He also outlines a proposed three-year graduate training program for certified paedodontic specialists.

La pédodontie devrait être reconnue comme une spécialité. Cette reconnaissance favoriserait la formation d'un petit groupe de spécialistes en pédodontie qui agiraient comme consultants, professeurs, chercheurs et cliniciens dans des hôpitaux pour prodiguer des services de pédodontie que ne donnent pas les autres praticiens. Les omnipraticiens et ceux qui limitent leur exercice aux enfants continueraient à prodiguer la plupart des services professionnels aux enfants. L'auteur énumère les exigences d'un cours de pédodontie pour les étudiants sous-gradués. Il suggère aussi un projet de trois ans de cours pour former des spécialistes en pédodontie.

Paedodontics is that branch of dentistry which deals with the dental needs of children. Paedodontics should be a recognized specialty if the dental profession intends to offer a balanced service to the entire child population. This statement is not intended to imply that a third of all dentists must be paedodontic specialists (paedodontists) in order to care for one-third of the total population that is com-

*Assistant professor of paedodontics, Faculty of Dentistry, University of Toronto, and chief of dentistry, Hospital for Sick Children, Toronto.

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posed of children. On the contrary, it is quite unnecessary that the average child be treated by a certified paedodontist. All dentists should receive adequate undergraduate instruction in paedodontics. General practitioners and dentists who voluntarily limit their services to children without aspiring to specialty certification should provide the bulk of the dental care required by the nation's children. The future of dentistry would be seriously jeopardized if the profession and the public were to rely exclusively on paedodontists for the provision of these services. This is one field in which the general practitioner must be encouraged to participate.

Paedodontic specialists should be limited to a small group of dentists with specific functions within the larger framework of a corps of enlightened general practitioners. The specialists' responsibilities would include teaching, research, hospital work, and consultation.

Undergraduate instruction

All Canadian children are entitled to good dental care. Normal children should not be compelled to seek treatment from a few specialists in large metropolitan centres. They should be treated by enlightened general practitioners. This places a heavy responsibility on undergraduate instruction. The latter must be adequate in scope and must contain enough stimulus so that the graduate may confidently render adequate services for the child patient.

In 1958-59 about 4.2 per cent of curriculum time in American dental schools was devoted to paedodontic instruction.[1] But recent graduates have indicated that about 14 per cent of their practice time is spent in paedodontic work. In 1962 approximately 800 general practitioners in the United States were limiting their practice to children. All these facts suggest that the time allotted to undergraduate paedodontic instruction is not proportional to the time devoted to this field by the graduate. Parents are seeking treatment for their children, and dentists should meet this demand. It is true that the amount of time devoted to paedodontic teaching does not necessarily reflect a good course content. But conversely, development of a good course requires a certain amount of time.

Undergraduate dental students are required to examine and complete treatment for paedodontic patients. As practitioners they should be expected to provide the same services after graduation. The only real difference between a university paedodontic clinic and private practice is that clinic patients may be screened to provide good teaching material for the undergraduate, whereas the graduate dentist has to recognize for himself those patients who require special attention, consultation or management. It is these few cases in the latter category that should be referred to the certified specialist.

It follows that one of the most important aspects of undergraduate teaching relates to diagnosis. Over and above the general discipline of oral diagnosis, some instruction should be specifically provided in paedodontic diagnosis. At graduation a student should clearly understand which problems he can cope with, and then apply reliable procedures to carry out complete treatment.

Undergraduate paedodontic instruction for students who intend to become general practitioners should be given by general practitioners interested in dentistry for children and by certified paedodontists. The example of a competent general practitioner instructing in dentistry for children encourages the young graduate to pursue this aspect of his career.

The student must be taught principles and techniques that will virtually always be reliable. Pulp therapy procedures for deciduous teeth that are only sporadically successful cannot be classed as reliable. Preformed space maintainers that require constant supervision and adjustment fall into the same category. These procedures should be rejected from the curriculum.

There is no place in paedodontics for short cuts.

Finally, teaching in the paedodontic clinic must be closely related to instruction given by other departments particularly concerned with children, such as orthodontics, dental public health and preventive dentistry. Co-ordinated teaching on the part of all these departments will produce graduates capable of adapting to everyday working situations the knowledge and information derived from each.

The general practitioner

The general practitioner bears an important share of the responsibility for maintaining dental health in children of a community. Organizations such as the Canadian Society of Dentistry for Children were formed for the specific purpose of helping general practitioners to fulfil this obligation. Information furnished at the scientific meetings of this organization and through university postgraduate and refresher courses helps general practitioners to keep abreast of current developments in paedodontics.

The certified paedodontist

There is need for a small group of certified specialists if the field of dentistry for children is to be properly developed. The general practitioner, occupied with the demands of private practice and charged with responsibility for the bulk of the care to be given to children, has neither the opportunity nor the time for certain activities that should be the responsibility of the specialist. These activities embrace consultant services, research and teaching, and hospital paedodontic services.

The paedodontist's most obvious responsibility is that of a consultant. In this capacity he can support and supplement the work of the general practitioner. It must be remembered that the paedodontist has a responsibility both to his patient and to his confrères. If his relationship to a patient and to a general practitioner should occasion any conflict of interest, the patient's interest must take precedence over that of the colleague. If a patient should suffer because of professional ethics, we make a mockery of ethics.

A small group of well trained paedodontists must develop the field of dentistry for children to its maximum potential. This is most readily accomplished through teaching and research. The certified paedodontist should be qualified to conduct scientific investigations independently. He should be able to analyse or criticize other research projects constructively. Moreover, he should possess a clinical background and experience enabling him to select useful investigations and to implement the results at the clinical level.

Because the paedodontist has a major responsibility for undergraduate teaching, it is in this area where many feel their greatest contribution to the profession lies. The teaching program must correlate didactic with clinical instruction, must develop rapport with other specialties, and must relate the specialty of paedodontics with general practice.

The responsibility of directing dental programs for children within a hospital often devolves on the paedodontist. Treatment of sick or handicapped children is not an exclusive preserve for the certified paedodontist. Nevertheless, these specialists are frequently the only individuals with the graduate training sometimes required to cope with conditions which in the general population are rare, but which in the hospital environment are frequent. Such patients often require a general anaesthetic which should be administered by a medically qualified anaesthetist. The paedodontist should be trained to integrate into the hospital organization and to take his place on the medical staff. Where such staff privileges are not accorded to dentists, it falls to the paedodontist to develop a satisfactory arrangement with the medical profession

to allow in-hospital dental treatment for the children who require it.

Graduate training for paedodontic specialists

A graduate program must be designed to satisfy the particular needs of the certified paedodontic specialist as distinct from his colleagues who limit their practice to children.

It is desirable that candidates proceeding toward specialty certification have some prior clinical experience, preferably in a private practice. This may become a requirement in the future. Dental schools may then insist on a minimum of one year's hospital internship prior to enrolment in a course leading to paedodontic specialty certification. This would be followed by a two-year graduate program of balanced clinical, research and academic training.

A hospital internship, although extending the graduate course to three years, serves many functions. It gives the student practical experience, teaches him hospital routine, and brings him close to atypical patients and the medical treatment and personnel involved in these instances.

The subsequent graduate program might comprise the following elements: basic science instruction would occupy about half of the time during the first year, and one-quarter of the time during the second year; the remainder of the time would be almost equally divided between clinical and theoretical paedodontic subjects. The student could have some choice in subject material selection, but all paedodontic, as well as orthodontic, students would have to be well versed in growth and development and the aetiology and prevention of malocclusion.

The clinical requirements are best satisfied by dividing time between hospital and university dental clinics. This liaison, though sometimes difficult to establish, is essential for a complete program.

The teaching technique that seems most instructive, although somewhat time-consuming, is a well organized seminar program. Graduate education is largely self-acquired. The seminar, which usually involves reading assignments, encourages self-criticism by the participants and involves each student personally in the learning process. This method, however, loses some of its advantage if attendance is limited to only a single specialty. It is desirable that common instruction periods be held for students in several related specialties.

If paedodontic specialists are to provide a source of future paedodontic teachers, then the graduate paedodontic student should receive carefully supervised teaching experience as a demonstrator in an undergraduate teaching program. This arrangement is usually acceptable to all concerned if it is kept under strict control and not abused by the teaching staff. Graduate students must not be used to supplement deficiencies in the teaching staff establishment. Graduate student-demonstrators must have firm terms of reference as a framework within which to teach and criticize. At no time should they be responsible for major decisions without prior staff consultation. By actual teaching, the student is learning to teach and must be supervised during this period. Experience as a graduate student-demonstrator should occupy about half a day per week during the latter half of the two-year program.

Graduate paedodontic programs should offer some latitude in research training. For example, a student particularly gifted or interested in research should be given enough time to pursue this field. A thesis or scientific essay is usually the largest component of the research activity. Each student should have one or more sponsors to direct and guide this endeavour. On completion of the thesis one would expect the candidate to be well read in a specific subject, and fully aware of the principles involved in organizing, conducting, analysing and reporting his investigation.

Summary and conclusions

Paedodontics should receive recognition as a specialty of dentistry. This would permit the training of a small core of certified paedodontic specialists to provide consultant, teaching, research and some hospital paedodontic services not available from other practitioners. General practitioners and dentists who limit their practice to dentistry for children would continue to provide the major portion of professional dental care for children.

The essential requirements of undergraduate instruction in paedodontics are described. Outlined also is a proposed three-year graduate training program for certified paedodontic specialists.

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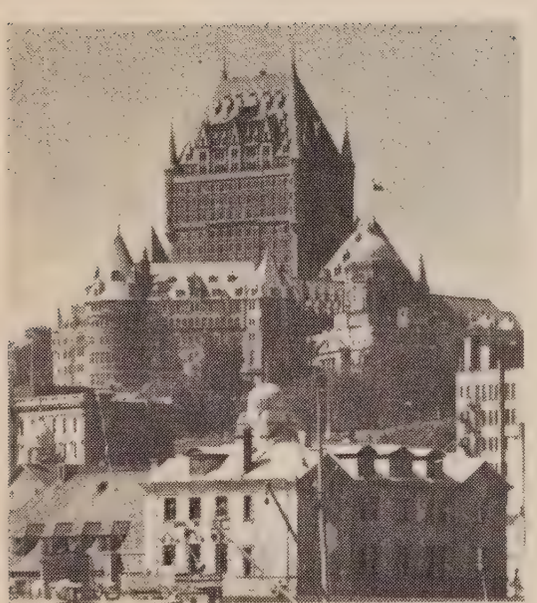


Are you going to the C.D.A. National Convention in Quebec in May 1965? Founded by Champlain in 1608, on the same spot where Cartier spent the winter of 1535, Quebec City is the cradle of Canadian history and has witnessed the sojourn or passing, within its walls, of persons of prestige from two regimes — English and French. Successively the capital of New France, of Canada after the British conquest, and of the province of Quebec, the city has always played a role of paramount importance in the national, religious, social, economic and political life of the nation. From its past it preserves stirring memories that make it unique among the great centres of America. The Chateau Frontenac Hotel, site of the convention, is a dominant landmark.

par Guy Boyer, D.D.S., Montréal, P. Qué.

L'IMPORTANCE DES REDRESSEMENTS MINEURS

en tant que facteurs indispensables au succès des travaux de restauration

L'omnipraticien, à cause de la pénurie d'orthodontistes, doit être préparé à entreprendre des déplacements mineurs des dents, quand l'exigent et avant d'entreprendre des traitements de restauration.

▪

Because of the shortage of orthodontists, it is imperative that general practitioners be prepared to undertake minor tooth movement, whenever necessary, preparatory to further restorative treatment.

La denture adulte subit tout au long de son existence des pressions qui induisent des mouvements variés, perceptibles ou non. Le périodonte, selon sa physiologie et l'intensité et la direction de ces forces, subit une stimulation ou une destruction. Un principe d'adaptation endogène, ou de protection, régit ces déplacements 'physiologiques' des dents. L'issue de cette adaptation ne favorise généralement pas le complexe dentaire; la nature s'accommode mal des bouleversements qui lui sont imposés. Il existe par contre des façons exogènes de prévenir ou de corriger une situation qui exerce des perturbations sur l'appareil dentaire. L'enfance se prête à la prévention; chez les adultes, il faut corriger. C'est l'objet de ce mémoire. L'orthodontie mineure s'incorpore à d'autres traitements et tient une place comme mesure adjuvante d'une réhabilitation complète. L'orthodontie chez les enfants est chose très importante, orientée surtout vers la prévention et sans lien de continuité avec d'autres travaux restauratifs qui d'ailleurs n'ont pas la même importance que chez les adultes. Cette optique a incité notre profession a développer diverses techniques dont le grand tort fut souvent d'être trop compliquées pour l'omnipraticien et inadaptées à des patients dont l'occlusion était normale dans l'ensemble, mais dont une ou quelques dents étaient en malposition. A cette catégorie de patients s'adressent les travaux d'Hirschfeld,[1-3] Neustadt,[4] Geiger,[5] Sorrin.[6] Ils ont un dénominateur commun: redressements dentaires minimes chez la population adulte, en vue d'une réhabilitation complète. Le déplacement mineur procède de mouvements de bascule; l'orthodontie utilise en plus des mouvements en bloc.

Travail qui a valu à son auteur le premier prix au Concours 1964 du Mémorial de Guerre de l'Association dentaire canadienne.

Ces phénomènes individuels, tels une dent en dehors de l'alignement, une mauvaise corrélation avec une dent antagoniste, une inclinaison axiale incorrecte, les torsions, bref toutes les malrelations qui peuvent exister entre une dent et ses voisines ou ses antagonistes et qui se corrigent par des appareils simples, s'intègrent à une dentisterie qui se veut restauratrice et que définit Hirschfeld:[3] les meilleurs résultats esthétiques, patronnés par une bonne fonction. Il y a quelques années, les élèves ne recevaient à peu près pas de cours d'orthodontie; seuls ceux qui s'y spécialisaient pouvaient entreprendre de déplacer les dents. Le dentiste contemporain, même s'il ne possède pas les connaissances nécessaires pour exercer l'orthodontie vraie, est plus aguerri et peut tout de même prévenir et classifier les malocclusions, les référer à un orthodontiste, savoir judicieusement choisir et traiter les cas simples. La tendance est à une dentisterie complète, un service total qui incorpore de telles procédures. C'est une arme de plus à la panoplie du praticien général, et disons qu'elle mérite plus que ce qu'elle rapporte, au sens mercantile du mot.

Etude statique

Avantages des redressements dentaires mineurs

Présentons-nous dans le contexte d'une réhabilitation totale de la denture où les malpositions ont une étiologie locale et ne justifient pas les soins d'un orthodontiste, quoique la consultation soit parfois souhaitable. Il faut déployer toutes les disciplines dentaires: dentisterie opératoire, prothèses partielles fixe et amovible, périodontie, endodontie, chirurgie. En y incorporant quelques notions d'orthodontie, ne pourrait-on pas remodeler le plan de traitement initial et éliminer les contingences de certains services pour les remplacer par les qualités d'un autre; éviter certains irrémédiables, enrichir le choix des procédures et faire bénéficier le patient d'un ensemble rationel de traitements? Cette attitude ne change pas la qualité du service, mais les conditions dans lesquelles il s'opère: le pronostic n'en est que meilleur. Par exemple, un pont entre des dents parallèles l'une à l'autre rend certes un service supérieur à un autre où les dents sont convergentes. Stern[7] expose cette idée: "De tels mouvements permettent le redressement des dents de façon à les rendre parallèles et ainsi à transmettre les forces occlusales dans la direction de leur grand axe. Ces redressements peuvent éviter l'exposition de pulpe lors des meulages et créent les conditions suivantes: meilleur alignement avec les dents de la même arcade ou leurs antagonistes, espace plus grand pour le pontique, des embrasures papillaires plus larges, des fosses cuspidiennes et des crêtes marginales plus fonctionnelles. Le redressement permet la prothèse partielle fixe de préférence à la prothèse amovible. La fermeture des points de contact pour la même raison peut éliminer la nécessité des incrustations. Ce rebalancement minimise le meulage dans l'ajustement d'occlusion et prévient la sensibilité, sinon l'exposition; enfin évite l'extraction." En périodontie, le contrôle de l'inflammation, l'élimination du tissu de granulation et de l'interférence occlusale ne corrigent pas nécessairement la malposition de la dent; on envisagera des redressements mineurs. L'esthétique d'ailleurs milite en leur faveur.

Facteurs généraux

Age. — ce facteur conditionne l'intensité des forces à appliquer et en conséquence la rapidité du traitement. L'activité ostéoclastique et ostéoblastique qui permet les déplacements dentaires est inversement proportionnelle à l'âge; chez un patient plus âgé, il faut appliquer des forces plus faibles et intermittentes, en harmonie avec la physiologie osseuse.

Etat du périodonte. — à cause de troubles du périodonte contigu aux dents en mal-

position, Glickman[8] nous avise d'éliminer d'abord toute maladie péridentaire. Car s'il y a une dégénérescence considérable des fibres de la membrane, les forces appliquées ne seront pas transmises à l'os avec l'efficacité optimum. Donc, traitement premièrement péridentaire, secondairement orthodontique!

Vitalité pulpaire. — elle ne joue aucun rôle dans les déplacements dentaires, mais en présence d'une pulpite, il est souhaitable de négocier avec la pulpe d'abord; en présence d'une lésion péri-apicale il faut avant tout remettre les tissus en état normal. Le pronostic n'est pas hypothéqué si l'on compense dans l'application des forces.

Hauteur verticale. — si ces déplacements comportent une augmentation de la hauteur verticale, le dentiste sera à l'affût de la hauteur limite qui n'entrave en rien la tolérance des muscles masticatoires et la physiologie de l'articulation.

Habitudes. — qu'un patient se présente avec une histoire de cas où prévalent des habitudes que l'on dit occupationnelles ou nerveuses, et que ce patient souhaite voir corriger les conséquences de ce qu'il ignore être ses habitudes, le dentiste devra agir avec circonspection, s'assurer que le patient contrôle ces habitudes après lui en avoir expliqué les méfaits, et songer en cas d'une collaboration douteuse à des jumelages de plusieurs dents; ou enfin si la collaboration s'avère au départ inexistante, à ne rien entreprendre du tout.

Diagnostic et plan de traitement

Un bon diagnostic décèle toutes les anomalies et tente de leur fournir une explication. C'est selon Scoop et Bien,[9] la partie la plus importante dans le traitement des malocclusions. Hirschfeld et Jay[3] reconnaissent les étapes suivantes comme essentielles:

(a) Histoire dentaire et dossier complet de la bouche du patient. — Il faut savoir pourquoi et comment les malpositions se sont produites, quels sont les facteurs susceptibles d'occasionner une récurrence après traitement, et comment la prévenir. Car les traitements d'orthodontie ne se présentent pas comme des problèmes mécaniques, mais biologiques: l'étiologie est donc plus importante que les appareils.[10] Ce dossier indique le degré de mobilité et la profondeur des sacs de toutes les dents, afin d'évaluer les progrès ou les méfaits de la procédure sur les dents qui meuvent ou qui servent d'ancrage.

(b) Modèles d'étude, prise de radiographies et de photographies sous plusieurs angles.

(c) Etude sur l'étiologie et la position définitive anticipée. — Si le dentiste veut exposer au patient les raisons qui motivent les procédures suggérées, faut-il encore les comprendre lui-même. Par ce dialogue, le patient, qui contrôle lui-même partiellement l'opération, sera mieux renseigné et plus coopératif. Si le pronostic est relativement mauvais et si des rétentions extensives sont à prévoir, les objectifs se fixent vers des thérapeutiques logiques qui rendront l'entreprise valable; il faut, par exemple, favoriser des facteurs d'environnement locaux plus compatibles à la santé dentaire et péridentaire, supprimer ou réduire des stresses sur l'appareil masticatoire, placer des restaurations ou effectuer des jumelages pour supporter la faiblesse et la surcharge des dents, corriger la rétention alimentaire. Telles sont les fonctions du dentiste contemporain!

Les redressements mineurs entrent dans ces services même s'ils ne sont pas parfaits et s'ils requièrent des rétentions fixes. Il vaut mieux redresser les dents dans une certaine proportion que les laisser dans leur état anormal.

(d) Considérations sur la possibilité de produire le mouvement désiré.—Exemple: quelques dents sont en malposition; la cause est locale; les dents et les tissus qui les entourent sont sains. La distance à mouvoir est de quelques millimètres. L'occlusion est d'abord équilibrée et les dé-

FIGURE 1 Mouvements exercés sur une dent en labioversion (D'après Hirschfeld et Jay, J.A.D.A. 50:282, 1955.)

fauts flagrants corrigés. Le traitement mineur d'orthodontie exige les conditions suivantes:

1. Il doit y avoir suffisamment d'espace entre les dents adjacentes et la dent malposée pour que celle-ci puisse s'y insérer; à défaut, créer cet espace en remodelant ou en déplaçant les dents adjacentes (Figure 1).

2. La dent à bouger doit être exempte de toute interférence occlusale dans les divers mouvements de la mandibule, et ce, à tous les stages du traitement. A défaut, soit meuler cette dent ou son antagoniste, soit fabriquer un appareil temporaire en résine qui élève l'occlusion. Donner à ce facteur l'attention qu'il mérite, car, en puissance, il favorise une occlusion traumatique sur une dent qui est déjà hypothéquée par le redressement.

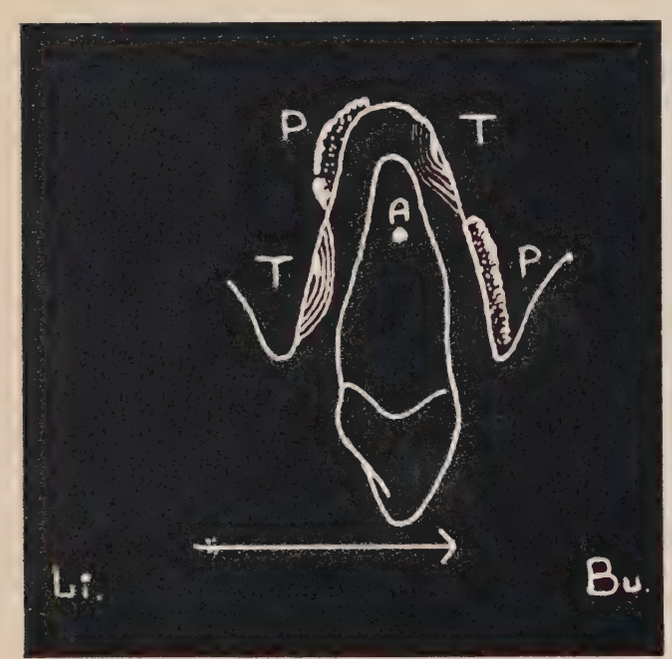


FIGURE 2 Réaction de l'os aux pressions et tensions. P, pression. T, tension. A, fulcrum, qui peut être situé plus près de l'apex si les forces sont faibles ou plus près de la couronne si elles sont fortes. (D'après Graber, Orthodontics — principles and practice, Saunders.)

3. La dent à déplacer doit être dans une position telle dans l'os de support que son mouvement dans la position désirée ne l'amène pas en dehors de la crête. Ce mouvement ne doit pas entraîner une résorption des parois linguale ou buccale de l'os et mettre cette dent en péril. Ou encore la perforation de la couche corticale par l'apex, surtout pour les dents antérieures.

4. On doit éliminer les forces qui ont engendré la malposition, à moins que l'on ne songe à des rétentions fixes et permanentes qui distribueraient les pressions sur plusieurs dents. Bref, s'assurer du contrôle des facteurs myofonctionnels ou pathologiques.

Il faut profiter au maximum du jeu subtil entre la résistance et l'épuisement. Les influences systémiques, qui déplacent ordinairement plus d'une dent, doivent être décelées et traitées.

5. Il faut enfin évaluer ses limites, ses connaissances, son habileté, la durée du traitement, la disponibilité du patient et les possibilités de consultations.

Réponse des tissus aux redressements dentaires

La pulpe, le cément, la dentine et l'émail ne subissent que peu de changements lorsque les forces motrices restent dans les limites physiologiques; il y a tout de même une possibilité d'hémorragie et de nécrose pulpaire s'il y a bris du paquet vasculo-nerveux à l'apex.[11] La membrane péridentaire et l'os alvéolaire réagissent davantage. La membrane fournit les éléments cellulaires qui régissent l'apposition ou la résorption de l'os, à savoir les ostéoblastes, lorsqu'elle subit une tension et les ostéoclastes, lorsqu'elle subit une pression (Figure 2).

Le principe de traction et de pression

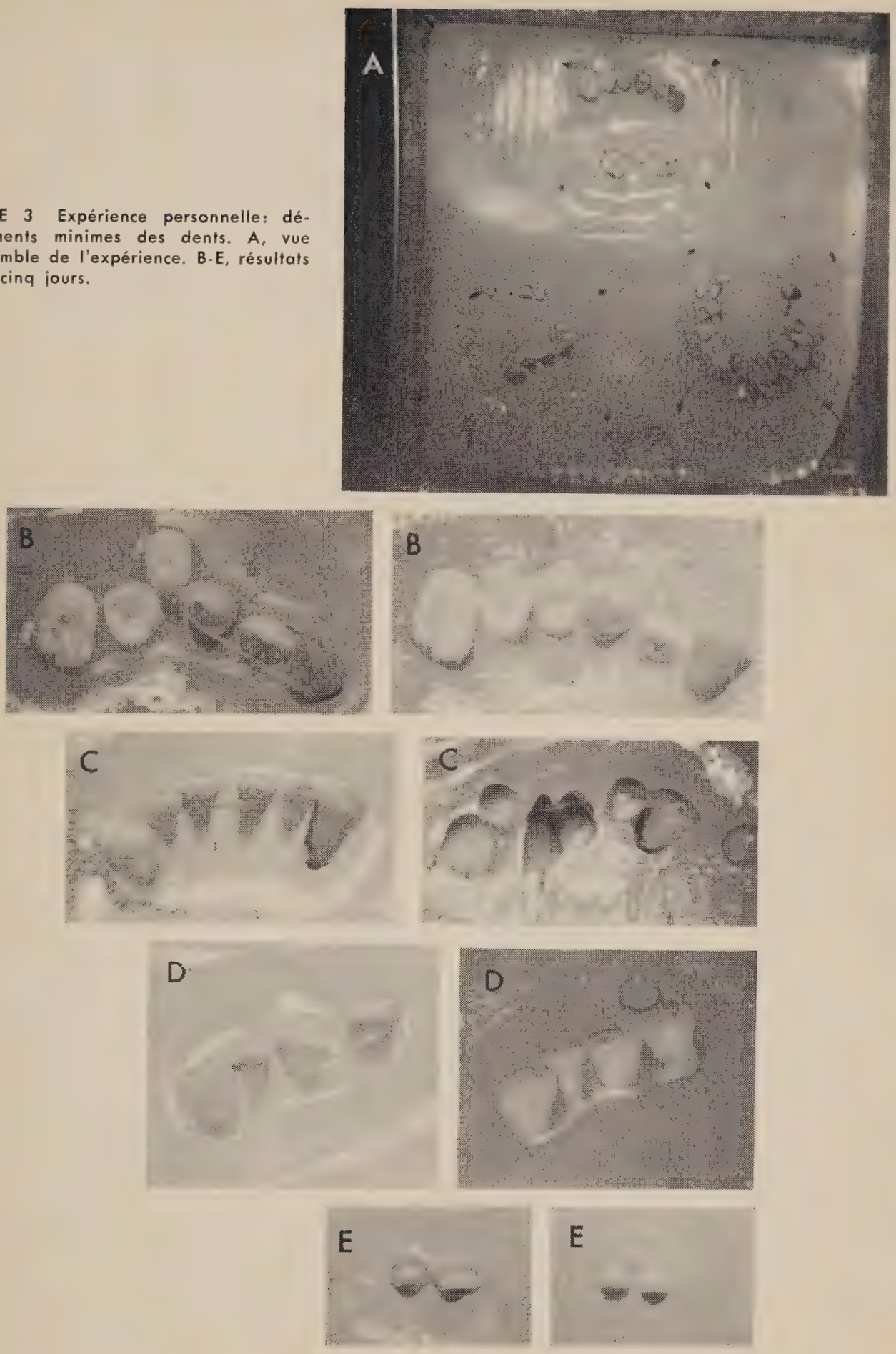


FIGURE 3 Expérience personnelle: déplacements minimes des dents. A, vue d'ensemble de l'expérience. B-E, résultats après cinq jours.

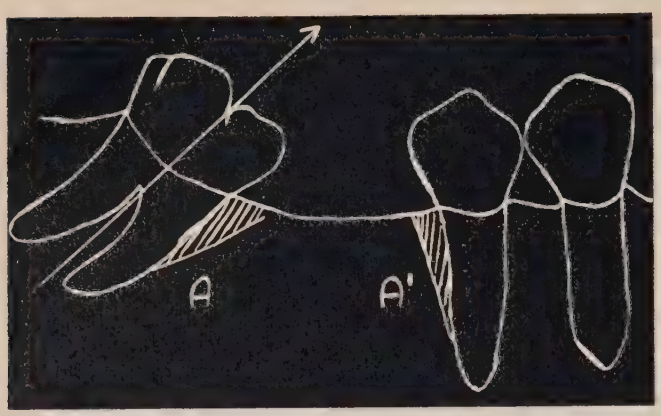


FIGURE 4 Inclinaison mésio-distale incorrecte et résorbtions d'os.

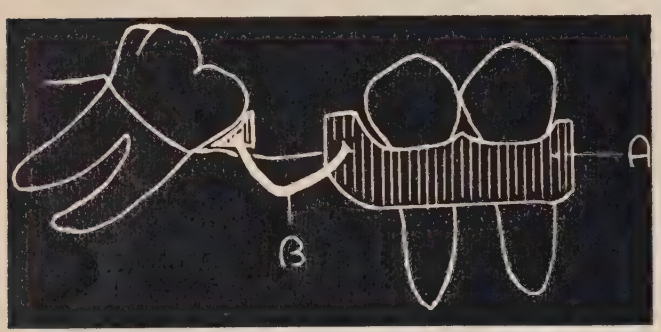


FIGURE 5 Appareil servant à redresser une molaire. A, acrylique. B, ressort ou fil d'acier inoxydable.

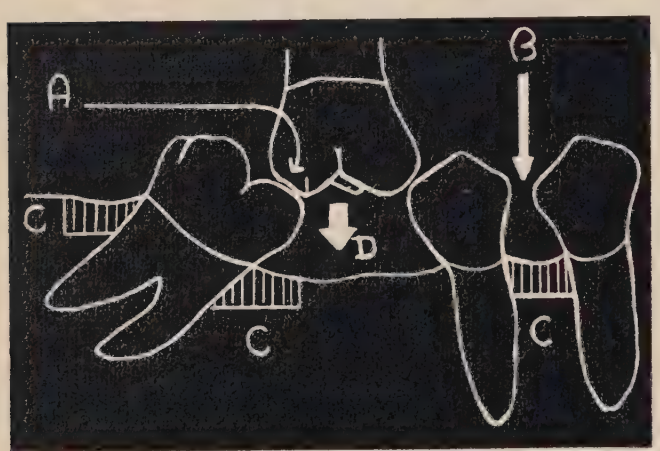


FIGURE 6 A, pression fonctionnelle anormale. B, accumulation alimentaire. C, zônes susceptibles de troubles péridentaires. D, extrusion. (D'après Graber, Orthodontics — principles and practice, Saunders.)

vaut très bien pour les mouvements de bascule, mais lorsqu'il s'agit de rotation, les fibres ne sont pas anatomiquement disposées pour recevoir une pression dans cette direction; on emploie des forces faibles et on contrôle davantage. Il en va de même de l'élongation; apparemment, dit Graber,[5] de tous les mouvements d'orthodontie, l'élongation est le plus susceptible de dévitaliser une dent. Enfin, il faut éviter des appareils instables, qui meuvent la dent dans une direction tandis que les forces de l'occlusion la meuvent dans une direction opposée, causant ainsi des mouvements oscillatoires dommageables pour la membrane et qui retardent le traitement.

Expérience personnelle

Principe: On se rappellera cette expérience de physique où un fil d'acier nanti d'un poids traversait un cube de glace. La traction induite sur le fil crée la chaleur nécessaire à fondre la glace tandis qu'un phénomène de regel se produit en arrière. Notre expérience en est une adaptation et se veut une analogie lointaine avec l'os alvéolaire.

Matériel utilisé: des dents extraites, aux racines bien polies. Des élastiques d'orthodontie. Un réceptacle de 8 x 8 pouces. Le réfrigérateur domestique maintenu à 31° F.

Façon de procéder: les couronnes des dents sont enfoncées dans une feuille de cire molle selon des malpositions préétablies. Des pylônes en bois (cure-dents) d'égale longueur sont insérés aux quatre coins de la cire, qui est alors déposée dans le réceptacle, faisant comme une table sous laquelle apparaissent les racines des dents. Le réceptacle est rempli d'eau jusqu'à la cire et mis au réfrigérateur. La glace formée, la cire est enlevée et les élastiques mis en place. Nous avons la figure 3A.

Résultats: Après cinq jours, des mouvements se sont produits, comme en témoignent les photographies suivantes.

Conclusion: Les tableaux 3 B, D et E sont probants. Quant au tableau 3 C, il a ceci de particulier qu'il montre un danger pertinent à l'utilisation des élastiques:

celui de causer l'extrusion de la dent si les élastiques glissent le long de la couronne.

Etude dynamique

INDICATIONS, IMPORTANCE ET TECHNIQUES

Nous avons esquissé l'importance des redressements dentaires, les éléments essentiels de diagnostic et la réponse des tissus aux traitements. Nous allons étudier maintenant l'aspect rationel et dynamique de ces redressements.

Mouvements mésio-distaux. — L'inclinaison axiale est idéale lorsqu'elle canalise les forces masticatoires dans le grand axe de la dent, en harmonie avec la direction des fibres de la membrane. Toute déviation à cette règle, comme l'inclinaison axiale mésio-distale, décompose les lignes de forces et crée des pressions obliques nocives à la membrane et à l'os.

Voyons quelques exemples typiques:

A. Une deuxième molaire est la dernière sur l'arcade. Il y a un espace mésial (classe VI, Applegate).[12] Cette dent est basculée mésialement (Figure 4).

Discussion: certains praticiens préfèrent l'extraction à un pont, car, pensent-ils, les chances de succès sont minimisées de plusieurs façons: par les résorptions de l'os en A et A' qui en découleront; par l'exposition possible de la pulpe pour donner à la pile un parallélisme souhaitable; par la dévitalisation de la dent et l'obligation d'y fixer un corps coulé. Mais le praticien au fait de ces techniques redressera la dent, construira un pont avec un espace mieux proportionné pour le pontique et évitera à son patient l'ennui d'une selle libre.

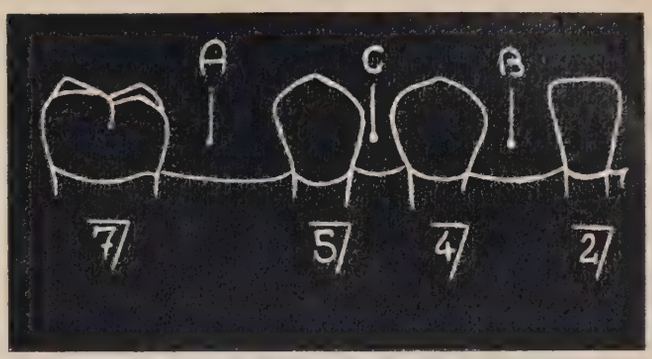


FIGURE 7 L'espace C est problématique.

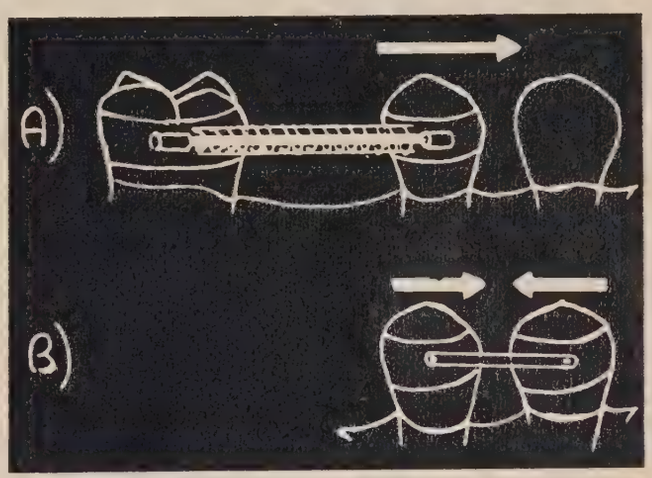


FIGURE 8 A, bagues et ressort. B, bagues et élastiques.

Technique: voir la figure 5. En figure 6 voici cette même dent et ce que l'on peut éviter en la replaçant.

Les redressements mineurs redonnent à des dents dont les axes sont divergents ou

FIGURE 9 Augmentation de la hauteur d'occlusion de façon orthodontique. (D'après Geiger, New York State D.J. 25:111, 1959.)

FIGURE 10 Pour aider à l'éruption d'une dent temporaire. (D'après Jaffe, New York State D.J. 29:78, 1963.)

convergents une résistance plus forte; ils évitent les contingences d'un appareil; ils obvient à la nécessité de réparer mécaniquement des situations d'ordre anatomique et biologique; ils préviennent des troubles éventuels au périodonte et parent à ce désastre qu'est l'extraction.

B. Voici un autre cas fréquent. On a constaté que, de façon générale, les deuxième et troisième molaires, après l'extraction de la première molaire, tendent à migrer et/ou à basculer mésialement tandis que les prémolaires, canines et incisives migrent distalement. Or ce glissement distal des prémolaires crée des espaces qui pêchent par l'esthétique et, s'ils ne sont pas suffisamment grands, laissent libre cours au mécanisme de l'accumulation alimentaire.

Discussion: les espaces A et B doivent être comblés. La difficulté réside dans l'élimination de l'espace C. Des couronnes complètes un peu plus larges mésialement sur la 5 et distalement sur la 4 réaliseraient le point de contact, mais préjudicieraient sur la santé des papilles en les comprimant dans un espace étranglé. Donc impossibilité mécanique de combler l'espace C. Si on confectionne le pont en ne couronnant que la 5, nous résolvons l'espace A, mais les espaces B et C demeurent ce qu'ils étaient et les aliments continuent à s'engouffrer entre les prémolaires. Même problème en ne faisant le pont que de 4 à 2.

La solution idéale: rapprocher 4 et 5, jumeler leurs couronnes et faire le pont de 7 à 2. Technique: voir la figure 8.

Des rapprochements mineurs permettent l'obtention de points de contact qui n'auraient été réalisables que par des incrustations et des couronnes. Mais est-ce qu'un pontique étroit n'aurait pas été plus avantageux dans l'exemple précité? Geiger[5] affirme: "Les pontiques étroits sont des trappes alimentaires en puissance. Ils empiètent souvent sur la papille interdentaire et peuvent causer des gingivites autour des piles, l'hypertrophie de la gencive et des infections chroniques ou aiguës sous le pontique. De plus, leur esthétique laisse à désirer." De tels redressements sont d'ordre biologique et semblent un excellent moyen de prévenir la rétention alimentaire.

C. Pour réhabiliter une denture, il faut souvent augmenter la hauteur verticale. On peut songer alors à redresser une molaire basculée mésialement (Figure 9). Autrement, on n'y parvient qu'en augmentant la hauteur de la couronne clinique par une restauration en or.

D. Pour un patient jeune dont la seconde molaire est ankylosée (Figure 10).

Mouvements labio-linguaux. — Les prémolaires inférieures ont tendance à basculer lingualement sous la pression de leurs antagonistes. Une fois ce premier mouvement amorcé, leur configuration anatomique les entraîne davantage vers le lingual (Figure 11).

Les latérales supérieures, par contre, se présentent souvent en labio-version. Dans les deux cas, ces dents occupent une position géométrique qui va à l'encontre de l'esthétique et qui invite généralement des troubles au niveau de la gencive. Ces troubles proviennent de l'accumulation des aliments dans des endroits que n'atteignent ni la brosse à dents, ni la langue. En l'absence d'auto-nettoyage, les aliments sont entassés proximalement et créent des sacs péridentaires le long des racines. Voilà donc une première raison qui milite en faveur du redressement de ces dents.

Lorsque dans l'élaboration d'un plan de traitement on s'aperçoit que ces dents figurent comme piles à une pièce de prothèse fixe, il faut songer aux risques encourus, si au préalable on ne meut pas ces dents dans leur position idéale: danger d'exposer la pulpe pour fin de parallélisme, reconstitution de la même anomalie sur une prothèse et diminution certaine de la durée de vie de cette dent, puisqu'au trouble péridentaire s'ajoute un surcroît de force sur une racine mal inclinée. Donc le redressement mineur est une bonne mesure pré-prothétique!

Si enfin ces dents nécessitent des travaux de dentisterie opératoire, les restaurations, non seulement seront plus faciles à exécuter, mais auront l'immense

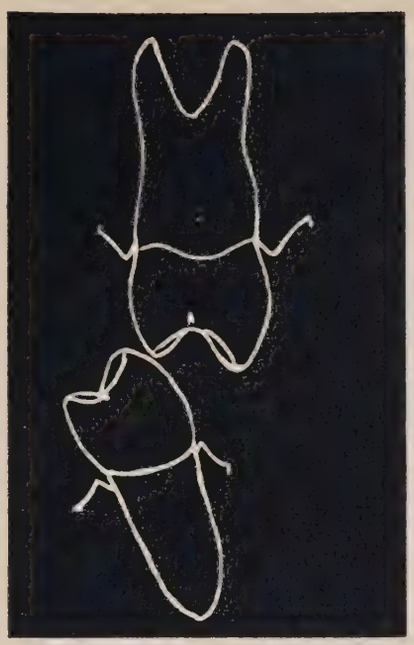


FIGURE 11 Bascule linguale.

FIGURE 12 Fil d'acier encerclé autour des dents, dont quatre servent d'ancrage. (D'après Sorrin, The practice of periodontia, Blakiston-McGraw-Hill.)

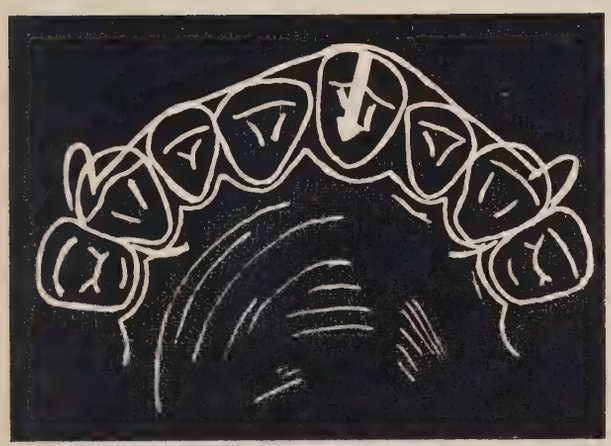


FIGURE 13 Appareil de résine amovible de type Hawley. (D'après Sorrin, The practice of periodontia, Blakiston-McGraw-Hill.)

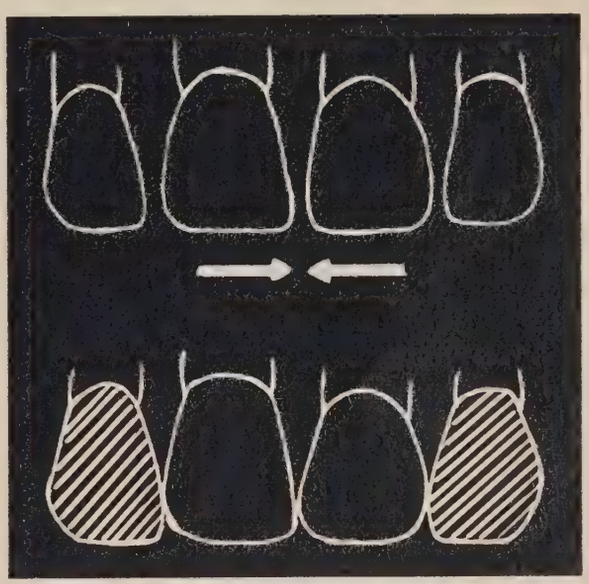


FIGURE 14 Les coiffes rendent les incisives latérales un peu plus larges que leur anatomie naturelle.

FIGURE 15 Rapprocher deux dents l'une vers l'autre. (D'après Hirschfeld et Jay, J.A.D.A. 50:282, 1955.)

avantage d'être plus permanentes et plus fonctionnelles. Les fosses cuspidiennes, comme l'indique Stern,[7] seront mieux construites et nous obtiendront un meilleur alignement avec les dents de la même arcade et une meilleure relation avec l'antagoniste. Les crêtes marginales de même que les points de contact seront à un niveau équivalent à celles et à ceux des dents voisines. Technique: voir les figures 11 et 12.

Diastèmes. — Deux causes les produisent: la perte des dents postérieures entraînant un glissement distal des antérieures ou une habitude buccale ayant comme effet

FIGURE 16 Rapprocher deux dents de deux autres dents. (D'après Hirschfeld et Jay, J.A.D.A. 50:282, 1955.)

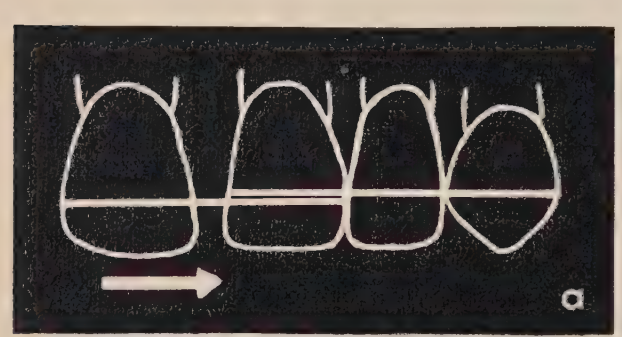
de pousser labialement les incisives. Pour fermer un diastème, on peut employer des coiffes de porcelaine qui par leur largeur mésio-distale comblent l'espace. On sait la faiblesse de tels procédés. Songeons plutôt à des déplacements mineurs qui égaliseraient l'augmentation du diamètre des coiffes.

On peut par ces techniques éviter deux coiffes au patient lorsqu'il existe des espaces réguliers entre les quatre incisives; en rapprochant les deux centrales, seules les latérales sont couronnées (Figure 14).

Certains individus présentent des incisives épanouies en éventail. Cette condition les gêne souvent dans leurs activités sociales. Si le plan de traitement prévoit que leur rétrusion permettra un 'over-jet' satisfaisant et un 'over-bite' pas trop prononcé, voilà encore une occasion d'entreprendre ces travaux. Ces traitements minimes ont l'avantage d'entraver le phénomène de respiration buccale qui s'était développé. Ce qui ne veut pas dire qu'il faille corriger tous les cas de protrusion des incisives supérieures; car dans les cas de Classe II, division I (Angle), la protrusion n'est corrigée que par une série de manipulations qui n'entrent pas dans le domaine de l'omnipraticien. Comme le recommandent Lamb[13] et Law,[14] les cas de Classes II et III n'ont avec le praticien général que des rapports de diagnostic. Technique avec des élastiques: voir les figures 15-17.

Comme ancrage, on ne se sert ici que des dents: ancrage simple, selon Graber.[11] Il faut très bien évaluer la forme, la grosseur, la longueur et le nombre des racines des dents qui servent d'ancrage, de même que l'état de l'os alvéolaire.

Occlusion croisée antérieure. — Il s'agit d'une ou deux dents et non d'un cas de Classe III. Comme l'indique Graber,[11] "il est essentiel d'avoir une relation normale des maxillaires et une interdigitation des segments buccaux" pour entreprendre la correction du croisement antérieur. Une telle situation, laissée à elle-même, conduit en définitive à une perte osseuse et au sacrifice prématuré de la dent. Une incisive supérieure immobilisée au lingual fait souvent l'objet d'un problème compliqué. Les implications fonctionnelles sont restreintes. Les excursions latérales sont impossibles et les mouvements masti-



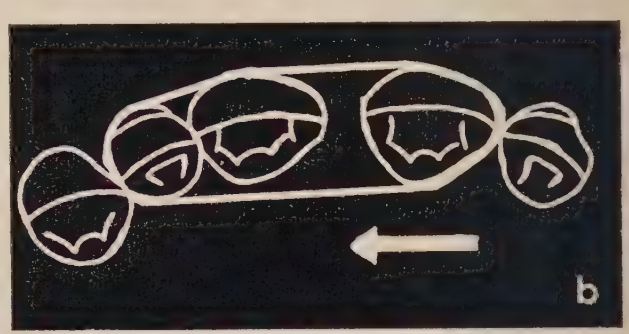


FIGURE 17 Rapprocher une dent vers d'autres. (D'après Hirschfeld et Jay, J.A.D.A. 50:282, 1955.)

catoires nuisibles. On va l'extraire plutôt que de l'inclure dans un pont.

Occlusion croisée postérieure.—La dent a une mauvaise relation avec ses voisines et son antagoniste. En dentisterie opératoire, les contacts sont mal placés, et, en prothèse, elle se trouve en dehors de l'alignement. Technique: voir la figure 18.

Rotation. — Il n'est pas toujours nécessaire de corriger la rotation des postérieures, surtout si elles n'ont pas à être restaurées. On corrige une antérieure pour l'esthétique et pour le jumelage.

Voilà l'importance des redressements mineurs! S'ils facilitent la reconstruction, celle-ci les facilite à son tour de cinq façons:[1]

(a) Les problèmes d'ancrage sont simplifiés, parce qu'on peut se servir d'un pont temporaire en acrylique pour y enrober crochets, ressorts, œillets.

(b) L'application des forces est plus effective. Puisque l'émail est meulé pour la confection de la pile ou de l'obturation, on peut trouer sa surface à l'endroit idéal pour l'insertion d'un crochet.

(c) On peut plus facilement réduire les surfaces proximales d'une dent qui chevauche si on prévoit de la couronner par la suite.

(d) On peut simplifier les mouvements de redressement en corrigeant plutôt la restauration. Dans un cas d'extrusion par exemple, on fera un minimum d'intrusion, on meulera la dent, et la restauration pourra être plus mince à l'occlusal.

(e) Le problème de rétention est simplifié puisque la dent est incorporée au complexe restauratif.

Rétention

Une fois le but atteint, il faut assurer à la dent une période de rétention pour l'ostéogénèse. Pour les dents qui demeurent anatomiquement les mêmes, il faut des appareils spéciaux. De l'avis de Bress:[15] "lorsque les dents ont été replacées dans leur position idéale, l'occlusion doit être vérifiée et ajustée si nécessaire, non par un meulage des contacts les plus saillants, mais par une équilibration complète de l'occlusion."

FIGURE 18 Bagues d'orthodontie et élastique. (D'après Hirschfeld, D. Clin. N. America, p. 737, novembre 1963.)

Revue des auteurs

Ils s'entendent tous sur la nécessité et l'importance des redressements; ils diffèrent par leurs techniques. Platzer[16] utilise des appareils d'acrylique amovibles. Jaffe[17] emploie un appareil composé de ressorts et de bagues. Hirschfeld[3] décrit l'utilisation des élastiques. Il y a aussi le fil de soie, la ligature d'acier, le Hawley modifié. Malgré la diversité des techniques, ces auteurs sont d'accord sur la simplicité, l'efficacité et la maîtrise de l'appareil choisi.

Conclusions

Ces notions de redressements mineurs s'épanouissent dans un concept plus large qui est celui d'un service complet offert par le praticien général. On reproche aux professionnels cette tendance à la segmentation, à la division des activités, à la spécialisation. C'est un impératif que commande notre siècle, mais ne se solde-t-il pas souvent au détriment du patient? En

chirurgie dentaire, plus qu'en médecine, le patient aspire à un service prompt et complet.

La juxtaposition de quelques données disparates forme tout-à-coup un tableau assez bouleversant: nous avons d'une part, comme le mentionnait Gullett,[18] 600,000 enfants qui requièrent des soins d'orthodontie, — soit 5,000 par orthodontiste. Cette disproportion est appelée à augmenter. D'autre part, la demande est de plus en plus grande dans le domaine général de la santé, et, paraît-il, les problèmes d'orthodontie viennent en second lieu après celui de la carie.

Voici donc l'orthodontiste qui doit osciller entre la correction et la prévention. Des mesures à long terme ont été suggérées, telles la fluoration des eaux, l'orthodontie préventive, l'augmentation du personnel auxiliaire. Le praticien général peut collaborer à cette tâche en incorporant à sa pratique l'orthodontie mineure; se greffent à cette conception, non seulement les notions de déplacements minimes des dents, mais aussi l'aspect plus statique et plus préventif que présentent les appareils de maintien et les appareils qui corrigent les mauvaises habitudes buccales.

A l'inverse du marché du travail, c'est, en chirurgie dentaire, la demande qui crée le besoin.

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Université de Montréal,
C.P. 6128

Tout dentiste devrait être protégé contre les accidents et la maladie, susceptibles de l'immobiliser. Les Plans d'assurance et de retraite de l'A.D.C. ont toute une gamme de plans qui s'adaptent aux besoins particuliers. Pourquoi n'écrivez-vous pas pour avoir plus de détails aux Plans d'assurance et de retraite de l'A.D.C., 2249 rue Yonge, Toronto 7, Ontario.

Federal income tax returns by dentists

For guidance to the dental profession and to bring about a greater uniformity in the data to be furnished to the Taxation Division of the Department of National Revenue in the annual Income Tax Returns to be filed, the following matters are set out.

Income

There should be maintained by every member of the dental profession an accurate record of income received from his profession (fees) and from other sources (investments, real estate rentals, etc.). The record should be clear and capable of being rapidly checked against the return filed. Records should be maintained in books kept for the purpose which should be retained until written permission for their disposal is obtained from the Minister of National Revenue.

Expenses

Under the heading of expenses the following accounts should be maintained and records kept available for checking purposes in support of charges made:

(a) Dental and like supplies.

(b) Office help, nurse, bookkeeper, laundry and malpractice insurance premiums:

Amounts of salaries and wages paid should be reported on Form T4, obtainable from your District Income Tax Office. (The Income Tax Act does not allow as a deduction a salary paid by a husband to a wife or vice versa. Such amount, if paid, is to be added back to income of the payer.)

(c) Telephone expenses incurred in connection with professional practice.

(d) Assistant's fees:

The names and addresses of the assistants to whom fees are paid, and amounts paid, should be furnished on or before the last day of February in each year on Form T4. (Do not confuse with individual return of income, Form T1, to be filed on or before April 30 in each year.)

(e) Rentals paid:

The name and address of the owner (preferably) or agent of the rented premises should be furnished. [See (g).]

(f) Postage and stationery.

(g) Proportional expenses of dentists practising from their residences:

1. Owned by the dentist: Where a dentist practises from a house he owns and as well resides in, a proportionate allowance of house expenses will be given for the laboratory, office and waiting room space, on the basis that this space bears to the total space of the residence. The charges cover taxes, light, heat, insurance, repairs, and interest on mortgage. (Name and address

of mortgagee to be stated.) Note: For depreciation see item 2 (m).

2. Rented by the dentist: The rent will be apportioned if paid by the dentist; the owner of the premises takes care of all other expenses mentioned in (1) above.

(h) Sundry expenses (not otherwise classified):

The expenses charged to this account should be capable of analysis and supported by records.

Claims for charitable donations will be allowed up to 10 per cent of net income from all sources upon submission of receipts to your District Income Tax Office. Charitable donations made through professional practice should be excluded from professional expenses and claimed as a deduction from income generally, along with any donations made otherwise.

The annual dues paid to governing bodies under which authority to practise is issued and membership association fees, to be recorded on the return, will be admitted as a charge.

For 1964 and subsequent years, tuition fees paid to an educational institution in Canada for a postgraduate course are an allowable deduction, but no deduction may be made in respect of travelling or living expenses incurred in connection with the taking of such a course.

(i) Interest paid on borrowed money may be charged against professional income if the borrowing was for professional purposes. If the money was borrowed to acquire investments, the interest is chargeable against the investment income. If the loan was for personal purposes no deduction from income will be allowed for the interest paid thereon.

(j) Business tax will be allowed as an expense but income taxes will not be allowed.

(k) Automobile expenses:

Taxi fares and automobile expenses incurred in earning the income from the dental practice will be allowed when the dentist must visit the patients at their homes. The cost of transportation between the dentist's home and his office, however, is not an allowable deduction from income.

(l) Social club dues are allowable as deductions from income only when, and to the extent that, they are paid for business purposes, and any dentist claiming them may be required to prove, to the satisfaction of the taxation authorities that the amount claimed was expended wholly and directly for the purpose of increasing his business income. "Social club dues" means annual or monthly membership dues or fees; it does not include an initiation or entrance fee or the cost of a share of a club's capital stock, nor does it include charges for food and drink, living accommodation, fees for the introduction of guests and the like.

(m) Capital Cost Allowance (Depreciation):

The method of computing capital cost allowance for tax purposes is the same as that used last year and you should have no difficulty if you have a copy of last year's return available.

A description of the treatment of capital cost allowance may be found on pages two and four of the T1 General Information Sheet.

Simply carry forward the balance remaining in each class after deducting last year's allowance. Add to this figure the cost of any new equipment purchased and deduct the proceeds from any disposal of property in each class. The rate you wish to use, not exceeding the maximum rate (see tables), is applied to this new balance for each class to obtain the capital cost allowance you may claim this year.

TABLE 1

Assets	Class	Maximum rate
Dental equipment including instruments each costing $100 or more	8	20%
Instruments costing less than $100	12	100%
Office furniture and fixtures	8	20%
Frame building (office or residence used both as dwelling and office)	6	10%
Brick building (office or residence used both as dwelling and office)	3	5%

The schedule on page four of the T1 General Information Sheet is reproduced at the foot of this page.

The maximum rates for the classes of equipment most used by dentists appear in Table 1.

Instruments costing less than $100 each belong in class 12 and have a maximum allowance rate of 100 per cent. They should not be included in expenses but their cost should be recorded as additions in column 3 of the schedule.

Where a dentist practises from a house which he owns and resides in, the allowance may be claimed as above on a portion of the cost of the residence, excluding land. For example if the residence were a brick building costing $12,000 and one-third of the space were used for the office, the dentist would use $4,000 as the business portion of the cost and apply the building rate of 5 per cent to determine the maximum depreciation allowable in the first year.

For further information on the subject you may refer to the Regulations or you may consult your District Income Tax Office.

Convention expenses

Convention expenses are allowable to an individual practising a profession, but the allowance is restricted to the expense of attending no more than two conventions in a taxation year. The taxpayer's attendance at the convention must have been for professional reasons. There are no geographical restrictions and the convention, therefore, need not necessarily have been held in Canada. The expenses to be allowed must be reasonable and the taxpayer should show:

1. The dates on or between which the convention was held, and the location thereof;

2. The number of days he was present at the convention, supported by a certificate of attendance from the sponsoring organization; and

3. The expenses incurred, segregating (a) Transportation expenses, (b) Meals, and (c) Hotel expenses, for which at least vouchers should be obtained and kept available for inspection.

All expenses of a personal nature including those attributable to the fact that the taxpayer's wife (or husband) accompanied him to the convention must be excluded from the foregoing.

No expenses for attending a convention are allowable as a deduction from salary income, since such a deduction is prohibited by Section 5 of the Act.

Registered retirement savings plans

The amount that is deductible in respect of contributions to a retirement savings plan is limited:

(a) In the case of an employee receiving a salary who is covered by a registered pension fund or plan (whether or not he contributes to the pension fund) to $1,500 or 10 per cent of his earned income, minus the amount, if any, he is allowed

SCHEDULE

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Class number	Undepreciated capital cost at beginning of 1964 (Col. 8 of 1963 return)	Cost of additions during 1964	Proceeds from disposals during 1964	Undepreciated capital cost before 1964 allowance (Col. 2 plus 3, less 4)	Rate %	Capital cost allowance for 1964	Undepreciated capital cost at end of 1964 Col. 5 less Col. 7

to deduct from income for his contribution to the pension fund.

(b) In other cases, to the lesser of $2,500 or 10 per cent of his earned income. "Earned income" usually consists of income received as salary (before any pension deductions) or income from carrying on a business or profession, plus net rental income.

The amounts deductible are those paid in 1964 and within 60 days after the end of the year. A payment made in January or February 1964 cannot be claimed in 1964 if it could have been deducted in 1963.

Individuals enquiring whether a proposed or existing plan is acceptable should usually obtain that information from the corporation offering the plan as it will normally be the corporation's responsibility to explain the plan and get it registered.

Dentists who have applied for membership in the Canadian Dental Association Retirement Savings Plan prior to February 15, 1965 may be assured that their names are registered as participants in a registered retirement savings plan and that their contributions are deductible for the taxation year 1964. The closing date for applications and contributions applicable to 1964 is February 15, 1965.

A personal statement of account and a receipt showing the amount of contributions will be mailed in March 1965 to each participant to support claims made for deductions in 1964 income tax returns.

Applications for membership in CDARSP received after February 15, 1965 will entitle participants to tax deferment for 1965.

Payment of tax

Individuals whose income is more than 25 per cent derived from sources other than salary or wages are required to pay the tax for each year by quarterly instalments during such year on the following dates, March 31, June 30, September 30 and December 31.

Dentists under salary contract

The Income Tax Act provides for the deduction of certain expenses from salary income.

The allowable expenses include travelling expenses, annual professional membership dues, office rent, salary to an assistant or substitute and supplies consumed directly in the performance of the duties of employment.

Certain conditions are attached to the allowance of the expenses. Without trying to recite the exact provisions of the law the main points are:

(a) That the expenses must have been incurred in the performance of the duties of the office for employment.

(b) That the employee is required under the contract of employment to pay the expenses.

(c) To claim travelling expenses the employee must be ordinarily required to carry on the duties of his employment away from his employer's place of business. Travelling between the dentist's home and his office is not included.

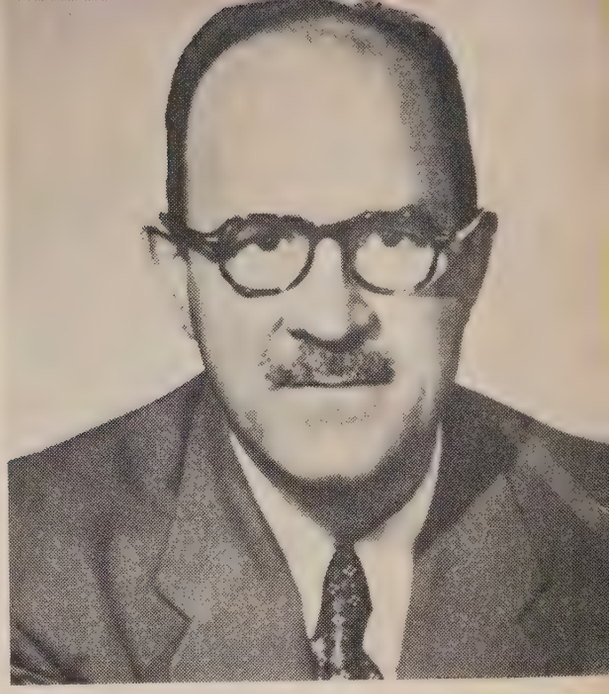
Income from a partnership

Additional expenses incurred by a partner, but not charged to the partnership, may be claimed as a deduction from the partner's share of income. However, the partner must be in a position to substantiate these expenses, to show why they were not charged to the partnership and that they were necessarily laid out to earn partnership income.

Provincial taxes on individuals

Each of the ten provinces imposes its own tax on the income earned by an individual in that province. With the exception of the province of Quebec, no separate provincial income tax return need be filed by an individual whose income is subject to provincial tax.

editorials • page éditoriale



A friend of the Journal departs

With the publication of this issue, Gérard de Montigny severs a connection with the *Journal of the Canadian Dental Association* that encompasses the career of four other editors. His departure deprives the Journal of its French editor, and this writer of an esteemed friend and colleague.

Dr. de Montigny has served the profession as French editor for nearly 19 years. He came to the Journal with a distinguished background. Following graduation from the Université de Montréal in 1934, he undertook further study at Chicago's Northwestern University where he earned a master's degree. Returning to his native Montreal in 1935, he began a successful private practice in oral surgery and simultaneously joined the faculty of his alma mater. There, his talents soon received appropriate recognition. He ascended the academic ladder and had attained professorial rank when, in April 1946, he was offered the additional appointment of French editor of the Journal. Never one to flinch at the prospect of challenge, Gérard de Montigny accepted this further opportunity of serving the French speaking members of the national association. Soberly he observed in his maiden editorial, "An editor's task is no sinecure, especially since dentists write seldom or not at all . . . but rather than complain, I willingly and confidently address myself to this new labour."

And thus he became an accoucheur of dental progress. Calling upon the experience of earlier years, he attended many a confrère undergoing the birth pangs of a dental manuscript and guided the offspring to full maturity upon the printed page. With his facile pen he also painted for French readers in each issue of the Journal an image of the profession that brought acclaim from distant lands. Every year, moreover, he translated the entire text of the *Transactions* of the Annual Meeting of the Board of Governors from English into French. These are but a few of the many services which Dr. de Montigny rendered on behalf of the common weal. If some English speaking members of the C.D.A. desire to become more acquainted with his work — *circumspice* — they have only to look about them.

Scholarship, a keen intellect and a deep concern for moulding young minds mark Dr. de Montigny as an outstanding teacher. A worthy dweller in the grove of Academe, he became in time secretary of his faculty and, more recently, vice-dean of dentistry at the Université de Montréal. The demands of these offices constitute the main reason for Dr. de Montigny's decision to relinquish his editorial duties. It is the hope of all his friends and colleagues that he will find ample satisfaction in devoting his full efforts more directly to the advancement of dental education. At the same time it will be a comfort to know that his friendly counsel and advice will be readily available to those who tend the Journal.

To Dr. de Montigny the C.D.A. expresses sincere gratitude for his services to the Journal and to organized dentistry. We wish him well in his future endeavours.

L'Association

Etude sur le rapport de la Commission royale

L'Association dentaire canadienne a formé un comité spécial qui a commencé à étudier sérieusement le rapport de la Commission royale d'enquête sur les services de santé. Ce comité a demandé à tous les conseils, les comités et les sections de l'A.D.C. de collaborer à son travail. Les membres du Conseil des Gouverneurs ont aussi été priés de faire des suggestions. On a recommandé aux organismes dentaires provinciaux de constituer des comités d'étude et de soumettre leurs idées. Le comité de l'A.D.C., quoique son mandat consiste surtout à soumettre au Conseil Exécutif ses critiques au sujet du rapport, s'est offert pour coordonner les idées et les suggestions venant de toutes les parties du Canada. On espère que le comité, en compilant les opinions de tous les dentistes canadiens, sera en mesure de faire des commentaires constructifs au sujet des recommendations de la Commission.

Le président du comité-pilote de l'A.D.C., formé à la demande du Conseil des Gouverneurs par le Conseil Exécutif, est le docteur Robert A. Clappison, de Toronto; le docteur Clappison est aussi président du comité des services dentaires de l'A.D.C. Les docteurs P. G. Anderson et W. J. Dunn, de Toronto, en sont les autres membres. Au cours de l'été, les membres du comité ont lu le rapport de la Commission qui contient 914 pages et, depuis, ils ont tenu deux assemblées. Des comités semblables ont été formés à Terre-Neuve, Ile-du-Prince-Edouard, Ontario, Manitoba et Alberta. D'autres provinces en formeront bientôt.

Conférence de recherches en octobre

La Conférence des recherches dentaires s'est assemblée pour la troisième fois à Ste-Marguerite, P. Qué., du 5 au 7 octobre. La moitié du temps de cette conférence a été consacré à étudier les besoins de l'avenir en recherches dentaires, à la lumière du rapport de la Commission royale d'enquête sur les services de santé. Des délégués de toutes les facultés dentaires canadiennes, du conseil des recherches de l'Association dentaire canadienne et du comité associé de recherches dentaires du Conseil national des recherches assistaient à cette réunion. Cette assemblée était financée par des octrois faits à l'Association dentaire canadienne par le Conseil national des recherches et par la Cie Procter & Gamble. Le docteur Jean-Paul Lussier, de Montréal, était chargé de son organisation.

Prix du concours du Mémorial de guerre gagnés par l'Université de Montréal

Pour la deuxième année consécutive, les gagnants du concours du Mémorial de guerre de l'Association dentaire canadienne sont des finissants de l'Université de Montréal. Guy Boyer a remporté le premier prix de $200 et René Bourcier, le second prix de $100. Le thème des mémoires était: "L'importance des redressements mineurs, en tant que facteurs in-

dispensables au succès des travaux de restauration."
Les prix proviennent d'un fonds établi en mémoire des dentistes morts en devoir au cours des deux grandes guerres. Le titre pour le concours de cette année est le suivant: "Traitement des urgences dentaires."

Bulletin spécial au sujet de la dernière réunion du Conseil des Gouverneurs

La dernière réunion du Conseil des Gouverneurs qui a eu lieu en juin dernier, à Edmonton, a été l'objet, en juillet, d'un bulletin spécial qui a été publié par le Bureau des renseignements au public de l'Association dentaire canadienne. Ce bulletin publié en anglais et en français a été expédié à tous les membres de l'Association. On peut encore s'en procurer des copies au secrétariat de l'A.D.C.

Le Canada

Winnipeg recevra l'Expo-Sciences

La quatrième Expo-Sciences nationale aura lieu à l'Université de Manitoba, à Winnipeg, du 6 au 8 mai 1965. Le docteur H. H. Saunderson, président de l'Université, agira comme président de l'exposition avec le docteur W. C. Lorimer, surintendant des écoles de Winnipeg. La première Expo-Sciences locale se tenait à Winnipeg, en 1958. Winnipeg est le siège d'une des Expo-Sciences régionales les plus considérables où sont choisis les finalistes pour l'exposition nationale. C'est le conseil canadien d'Expo-Sciences, dont l'Association dentaire canadienne est membre, qui organise l'exposition nationale.

Des garçons et des filles, en 1964, ont mis à point 5,000 exhibits scientifiques qui ont été admirés par 200,000 personnes à des expositions tenues dans des écoles, des districts ou des comtés. Soixante finalistes ont montré leurs exhibits à Montréal, au cours de l'Expo-Sciences nationale de 1964. Les prix décernés, chaque année, au meilleur kiosque réalisé par un garçon et à celui réalisé par une fille consistent en un voyage à Londres, Angleterre, pour assister à une Expo-Sciences internationale. Il y a parmi les autres prix celui de l'Association dentaire canadienne qui est de $100 à un garçon et de $100 à une fille. Un membre de l'Association dentaire canadienne fait partie, chaque année, du comité qui attribue les prix à l'Expo-Sciences nationale.

Frais de scolarité déductibles pour fins d'impôt

Des changements sont proposés à la loi de l'impôt sur le revenu au sujet des frais de scolarité. Au cours de 1964 et des années subséquentes, les étudiants qui complètent leur instruction en suivant des cours du soir ou des cours d'été ou qui sont inscrits à l'Université moins qu'à temps complet bénéficieront d'une nouvelle réglementation. Dans tous les cas, il faut que les frais de scolarité dépassent $25. Cette clause s'applique aussi à ceux qui fréquenteront une institution d'enseignement à temps complet en dehors du Canada. Dans les deux cas, le règlement au sujet du choix de n'importe quelle période des douze mois commençant dans l'année demeure inchangé. Les frais de scolarité ne sont pas déductibles par les parents de l'étudiant mais, nonobstant qui les paie, ils sont déductibles des revenus de l'étudiant.

Chronique internationale

Congrès ORCA aux Pays-Bas en 1965

Le Congrès ORCA 1965 (Organisme européen de coordination des recherches sur le fluor et la prophylaxie de la carie dentaire) aura lieu du 8 au 11 juin 1965 à Utrecht, Pays-Bas. Le thème principal sera "L'expérience clinique comme test

de l'efficacité des mesures prophylactiques contre la carie dentaire." Les conférenciers du thème principal sont désignés par le comité de l'ORCA. Les auteurs désireux de présenter une 'communication libre' sont priés d'annoncer le titre au secrétariat du congrès jusqu'au 1er décembre 1964 (Secrétariat du congrès: B. Houwink, Laboratorium voor Microbiologie, Catharijnesingel 59, Utrecht, Pays-Bas). Les résumés des communications libres devront être remis jusqu'au 1er mars 1965 au secrétariat du congrès.

Fédération dentaire internationale: comment peut-on devenir membre-supporteur?

On peut devenir membre-supporteur de la Fédération dentaire internationale à raison d'une cotisation annuelle de $16.00. En devenant membre-supporteur, on se crée des contacts avec des dentistes d'autres pays; on se tient au courant des progrès de la science dentaire dans le monde entier; on assiste à des réunions annuelles et à des congrès spéciaux dans des pays étrangers; on fait partie de la représentation de la profession dentaire aux activités internationales dans le domaine de la santé par le truchement de l'Organisation mondiale de la santé.

Les membres-supporteurs de la F.D.I. reçoivent le Journal dentaire international, le Bulletin de nouvelles de la F.D.I. et une carte de membre. On peut aussi devenir membre à vie en versant $200.00.

Pour devenir membre, on n'a qu'à écrire au docteur Don W. Gullett, trésorier national de la F.D.I. (234 rue St-Georges, Toronto 5, Ontario) qui fera parvenir une formule aux intéressés.

Association dentaire américaine: classification de dentifrices et de brosses à dents

Le conseil en thérapeutique dentaire de l'Association dentaire américaine a reclassifié le dentifrice Crest dans le groupe A et le Cue dans le groupe B. Le groupe A renferme des produits acceptés et publiés dans la liste des *Accepted Dental Remedies*. Le groupe B, dans lequel Crest avait été classifié, renferme des produits qui, à cause de leur nouveauté, n'ont pas pu, à date, fournir suffisamment de preuves de leur efficacité pour être inscrits régulièrement dans les *Accepted Dental Remedies*, mais qui néanmoins sont susceptibles d'être utiles et sans danger. Le conseil en thérapeutique dentaire a clairement exposé que la différence qui existe entre le groupe A et le groupe B se rapporte seulement à une question de temps et de preuves à l'appui et non à la qualité ou à l'efficacité. Le dentifrice Crest se vend et se fabrique au Canada. Le Cue se vend aux Etats-Unis.

Le conseil en thérapeutique dentaire a reconnu deux brosses à dents électriques comme des "objets utiles pour nettoyer." La brosse de la General Electric a été classifiée dans le groupe A et celle de Squibb, dans le groupe B. Le rapport du conseil soulignait que, malgré des preuves amassées en clinique montrant que les deux brosses classifiées nettoient efficacement les dents, il n'y a pas encore d'évidence suffisante pour que les fabricants de n'importe quelle brosse électrique puissent prétendre qu'elle a un effet thérapeutique.

Les organismes dentaires

Nouvelle Académie d'endodontie fondée

Mercredi, le 23 septembre 1964, l'Académie canadienne d'endodontie a été créée à l'auditorium de la faculté de chirurgie dentaire de l'Université de Toronto. Cet événement soulignait le premier geste officiel des endodontistes au niveau national, au Canada.

Cette Académie a été fondée dans le but de faire progresser l'art et la science de l'endodontie au Canada et, dans ses applications pratiques, d'en améliorer

l'exercice, l'enseignement et la recherche.

L'Exécutif de cette Académie se compose comme suit: président, George C. Hare; président-élu, Calvin D. Torneck; secrétaire-trésorier, Alistair H. Thomson. Toute demande de renseignements au sujet de l'Académie d'endodontie doit être transmise au secrétaire-trésorier, à The Medical-Dental Building, 1849 Yonge Street, suite 604, Toronto 7, Ontario.

Au Nouveau-Brunswick, le docteur Cripton succède au docteur Sansom

Le docteur M. J. Cripton, 280 rue St-Georges, Moncton, est le nouveau secrétaire et registraire de la Société dentaire du Nouveau-Brunswick. Il succède au docteur R.F. Sansom, de St-Jean.

Le Corps dentaire royal canadien

Assemblée de l'Association du corps dentaire

Le directeur général des Services dentaires des Forces canadiennes était représenté par le lt-col. L.G. Craigie à la seizième assemblée annuelle de l'Association du Corps dentaire, tenue les 17 et 18 septembre 1964, à l'Ecole du Corps dentaire royal canadien, Camp Borden (Ont.). Les invités d'honneur du Quartier général des Forces canadiennes étaient le vice-amiral K.L. Dyer, chef du personnel, et le brigadier G.H. Spencer, chef de l'instruction individuelle. Dans l'après-midi du 18 septembre 1964, le vice-amiral Dyer prononça une allocution devant les officiers de l'Association.

Deux officiers du corps dentaire ont suivi un cours de périodontie

Les majors R.J.K. Pyne, de la base de l'A.R.C., à Comox (C.-B.), et W.H. Carter d'Ottawa (Ont.) ont été choisis pour suivre un cours de périodontie de deux semaines à Ann Arbor, Université de Michigan, du 30 novembre au 11 décembre 1964.

Les facultés dentaires

En Colombie britannique, première classe d'étudiants, à la faculté dentaire de l'Université

La nouvelle faculté dentaire de l'Université de la Colombie britannique a ouvert ses portes en septembre dernier, en recevant huit étudiants. Ces huit étudiants ont été choisis parmi 65 candidats dont 40 répondaient aux exigences requises de trois années d'Arts. Tous les huit résident en Colombie britannique. On acceptera une nouvelle classe de huit élèves, l'an prochain et, en 1966, quand l'édifice de la faculté dentaire sera complété, on en acceptera 40.

Dentifrice: avant Jésus-Christ

Hippocrate (460-377 av. J.-C.) fut le premier à recommander un dentifrice qui avait la formule suivante: carbonate de chaux ou craie mêlée à la tête d'un lièvre et à des intestins de souris. Des dentifrices modernes de formules plus scientifiques et plus savoureuses ont été utilisés, l'an dernier, aux Etats-Unis à une moyenne de 10.5 onces, par habitant, soit une augmentation de 38 pour cent par personne, au cours des derniers six ans.

dentistry in the news

The Association

President Langlois Tours East

Dental organizations in eastern Canada received visits from C.D.A. president Rémy Langlois last month during the annual presidential visitation tour to the eastern provinces. Accompanied by Secretary-designate W. G. McIntosh, Dr. Langlois addressed meetings at Quebec City on October 19, Moncton on October 20, Charlottetown on October 21, and Halifax on October 22.

Dr. Langlois and Dr. McIntosh represented the Canadian Dental Association at the convention of the Newfoundland Dental Society in Corner Brook earlier in September.

News from Parliament

Royal College Bill in the Senate

Hon. Donald Smith (Queens-Shelburne) introduced Bill S-44, an act to incorporate the Royal College of Dentists of Canada, for first reading in the Senate of Canada on October 16. The proposed college is to serve as a national specialty qualifying and examining authority. At the 1963 annual meeting the C.D.A. Board of Governors approved a grant of $8,000 to meet the cost of incorporation and initial expenses of the college.

After receiving first and second reading, Bill S-44 was referred to the Senate Standing Committee on Banking and Commerce. On November 25 Canadian Dental Association officials testified before this committee on behalf of the bill. In attendance were C.D.A. President Rémy Langlois, Specialists and Specialization Committee chairman M. A. Rogers, C.D.A. Secretary Don W. Gullett, and Secretary-designate W. G. McIntosh.

Canada and the Provinces

New Dental School for Ontario

Premier John Robarts, October 29, announced a program of immediate expansion of medical, dental and nursing training facilities in Ontario at an estimated cost of $50 million. An additional $64 million will be spent in the next five years to assist teaching hospitals at Ottawa, Queens, Western Ontario and Toronto universities.

New projects include a new dental school at the University of Western Ontario, London, a new medical school at McMaster University, Hamilton, and three new regional nursing schools. Toronto and Queens university medical schools will also be expanded and renovated. New teaching hospitals are scheduled at Western Ontario and McMaster universities.

The new facilities will provide places for 400 additional dental students and 900

Canadian Fund for Dental Education receives $5,000 contribution from Canadian Dental Service Plans Inc. M. E. Bower, Toronto, vice chairman of the Fund's board of trustees, received the cheque recently from Dr. Peter Willson, Oshawa, president of CDSPI. Shown at the presentation are (l. to r.) W. E. Jackson, secretary-treasurer of CDSPI, Dr. Willson, Mr. Bower, and Fund secretary K. L. Croft. The Fund is conducting a fund-raising campaign among dental industries and the dental profession.

more medical students. Ontario now has about 504 dental students and 2,400 medical students in all stages of training.

President G. E. Hall of the University of Western Ontario has announced that planning a new dental school will begin immediately so that the first dentists may graduate in 1969.

CDSPI Donates $5,000 to Education Fund

The Canadian Fund for Dental Education has received a grant of $5,000 from Canadian Dental Service Plans Inc., according to a joint announcement by P. E. Willson, Oshawa, and J. D. McLean, Halifax. Dr. Willson is president of CDSPI. Dr. McLean is chairman of CFDE.

CDSPI realized a small surplus from its operations last year. As a non-profit agency it cannot retain such a surplus, Dr. Willson explained. Rather than turn infinitesimal sums back to each dentist participant, CDSPI decided instead to turn over a lump sum to the education fund. "We could think of no better place for this money," Dr. Willson declared.

Dr. McLean praised the action taken by CDSPI. "This contribution will enable CFDE to give further support to the needs of dental education," he added. Dr. McLean identified these needs as teacher training and curriculum studies, student recruitment, graduate fellowships and student loans.

All dentists who have not made their 1964 contributions are urged to send them to CFDE, 234 St. George Street, Toronto 5, Ontario.

Postgraduate Course Fees now Tax Deductible

The Taxation Division of the Department of National Revenue has announced a change in the Income Tax Act which makes tuition fees for Canadian postgraduate courses a tax deductible item. A letter from the department advises: "For 1964 and subsequent years, tuition fees paid to an educational institution in Canada for a postgraduate course are an allowable deduction, but no deduction may be made in respect of travelling or living expenses incurred in connection with the taking of such a course."

Most Hospitals Lack Dental Facilities

Ninety-nine per cent of Canadian general hospitals lack facilities for dental treatment, according to J. A. Pedler, dental surgeon-in-chief of Toronto General Hos-

pital. Dr. Pedler told the 40th annual convention of the Ontario Hospital Association, October 28, that only 14 of 1,375 public, federal and private hospitals in 1962 had dental departments. In contrast, he said, one-third of all U. S. hospitals include some form of dental service.

The Royal Commission on Health Services has recommended establishment of dental departments in all major general hospitals.

International Items

Canadians Invited to Jamaica

The Jamaica Dental Association will hold its first annual convention at the Sheraton Kingston Hotel, Kingston, Jamaica, January 24-30, 1965.

Canadian dentists have been invited to attend the meetings which will feature lectures, demonstrations and table clinics by prominent dentists from Canada, the United States and Jamaica.

Further information may be obtained by writing to V. F. Chen See, Jamaica Dental Association, P.O. Box 19, Kingston 5, Jamaica.

Zegarelli to Address Periodontists in Las Vegas

Canadian dentists are invited to attend the Twelfth Annual Scientific Meeting of the Western Society of Periodontology, March 28-30, 1965. The meeting will be held at the Hotel Sahara in Las Vegas, Nevada.

"Ulcerative and keratotic diseases of the mouth" will be the theme of the program and E. V. Zegarelli of Columbia University will be the essayist.

Further information may be obtained from Ida L. Eichorst, executive secretary, Western Society of Periodontology, 925 West 34th Street, Room 146, Los Angeles 7, California, U.S.A.

Dental Organizations

Academy of Endodontics Formed

A new national organization has been formed to promote the advancement of endodontic practice, teaching and research in Canada. Formally constituted during September, the Canadian Academy of Endodontics held its first organizational meeting on September 23 at the Faculty of Dentistry, University of Toronto. Newly elected officers are G. C. Hare, Toronto, president; C. D. Torneck, Toronto, president-elect; and A. H. Thomson, Toronto, secretary-treasurer. Enquiries relating to the academy should be sent to the secretary-treasurer, Medical-Dental Building, 1849 Yonge Street, Suite 604, Toronto 7,

Western Presidents and Secretaries Meet

Presidents and secretaries of western provincial dental organizations met in Vancouver September 19 and 20, 1964. In attendance were M. J. Lipkind, president, Alberta Dental Association; A. D. McKee, president, Manitoba Dental Association; A. F. Muirhead, president, College of Dental Surgeons of Saskatchewan; H. G. Pettapiece, president, British Columbia Dental Association; and W. P. Munsie, president, College of Dental Surgeons of British Columbia. Secretaries who attended were W. R. Upton from British Columbia, G. E. Decker from Alberta, F. R. Smith from Saskatchewan and W. G. Campbell of Manitoba.

Among the topics discussed were dental prepayment plans and dental service corporations, group accident and sickness plans for Alberta dentists, insurance plans sponsored by the Canadian Dental Association, the need for better co-ordination of convention scheduling, organization of the denture clinic sponsored by the Manitoba Dental Association, and developments arising from the Hall Commission Report.

M. J. Lipkind described the organiza-

tion of political economy study groups formed in several areas of Alberta. The purpose of these clubs, initiated by Alberta dentists, is to convey to the public the concern of the professions for social and political developments of the day. British Columbia and Alberta representatives reported marked improvement in the political atmosphere in their respective provinces.

Denture Clinics Established in B.C.

The first two low cost denture clinics were opened November 2 in Vancouver, with five chairs, and in Victoria, with three chairs. At the same time in-office service began in Kamloops, Kelowna, Penticton and Chilliwack. Director of the clinic service is G. I. Creasy, who also manages the Vancouver clinic. Associated with him and operating the Victoria clinic is S. R. Richardson. Part-time volunteers augment the staff.

All dental laboratories have been invited to submit a basis on which they would render the necessary laboratory services.

A major newspaper advertising program has been launched to support the clinics and to inform the public of the benefits of professional health care. The clinics offer professional denture service at the lowest possible cost, without any means test or residence qualification. Denture costs, thanks to high volume service, are low — $49 for a single denture and $96 for a full upper and lower denture. (There is, of course, no intention of establishing a single fee to be charged for dentures by private practitioners.)

Evidence of serious danger to dental health arising from the operations of untrained personnel is given as one of the reasons for establishing these clinics.

Vancouver Society Meetings Begin

Many dentists attended a meeting of the Vancouver and District Dental Society, October 6, to hear afternoon and evening lectures by Carl Regli, outstanding University of California prosthodontist. His subject was concepts and basic principles in partial denture prosthesis.

At this meeting members of the Dental Laboratory Association of B.C. were entertained as honoured guests. Nine dentists were admitted to membership in the society.

Psychologist Addresses Edmonton Society

Russell Haney, a Los Angeles psychologist, addressed an afternoon and evening meeting of the Edmonton and District Dental Society, October 6. Dr. Haney's topic dealt with communication, learning theory, speech pathology and psychodiagnosis. Dr.

Attending a conference of presidents and secretaries of western dental organizations in Vancouver, September 19, 1964, are (l. to r.) M. J. Lipkind, president, Alberta Dental Association; A. D. McKee, president, Manitoba Dental Association; A. F. Muirhead, president, College of Dental Surgeons of Saskatchewan; H. G. Pettapiece, president, British Columbia Dental Association; and W. P. Munsie, president, College of Dental Surgeons of British Columbia.

Haney is a graduate of the University of California at Santa Barbara and the University of Southern California, Los Angeles. He is consultant psychologist to Los Angeles County General Hospital and clinical instructor in the Department of Speech Pathology and the School of Dentistry, University of Southern California.

Lethbridge Dentists Elect Lamb

R. D. Lamb was elected president of the Lethbridge and District Dental Society for 1964-65 when that group met on September 17. Named with Dr. Lamb were B. J. V. Hover, vice-president, and R. Selk, secretary-treasurer.

Manitoba Dental Association Group Life Insurance Ends

The Manitoba Dental Association has been notified that its group life insurance plan will be concluded in November 1965. Canadian Premier Life Insurance Company is the carrier of the plan.

Claims to date amount to $90,000 and premiums paid by the 136 members total $55,000. Several alternative plans are under consideration including the C.D.A. life insurance plan. The C.D.A. plan requires evidence of insurability and the amount of insurance is less than that of the Canadian Premier Life Insurance Company.

Manitoba Association Asks for Changes in Practice Laws

The Manitoba Dental Association has prepared a brief to be presented to a special committee of the legislature on Dentistry appointed to study and make recommendations to the government in regard to changes in the laws regarding practice. The preparation of the brief arose from the decision of the Manitoba Court of Appeal on October 23, 1964, to allow the appeal of Timothy Sumida against a conviction of October 13, 1963, in provincial police court. The following report appeared in the October 23 issue of the *Winnipeg Free Press:*

"Manitoba Court of Appeal Friday allowed an appeal by Winnipeg denturist Timothy Sumida against a conviction for illegally making false teeth.

"At the same time Chief Justice C. C. Miller severely criticized the practice of laying private prosecutions in serious offences without the authority of the Crown.

"Mr. Sumida was convicted under the Manitoba Dental Association Act October 18, 1963, in provincial police court and fined $400 for illegally practising as a dentist by making false teeth without a prescription.

"Last February County Court Judge C. B. Philp dismissed Sumida's appeal but reduced the fine to $200.

"In Friday's decision the court of appeal accepted on a three to two split the argument by Sumida's counsel that the information should have been laid in the name of the Crown and not by Dr. Walter Gordon Campbell, secretary of the Manitoba Dental Association.

"Mr. Justice Samuel Freedman, with Mr. Justice A. M. Monnin concurring, would have rejected Mr. Sumida's appeal. Mr. Justice Freedman said he had "a very deep reluctance to dispose of this appeal upon the very technical ground advanced by the accused."

"Mr. Justice Freedman pointed out that Mr. Sumida had not claimed that he had not unlawfully practised dentistry. However, with Mr. Justice Ivan Schultz and Mr. Justice R. D. Guy concurring, Chief Justice Miller upheld the right of Canadian citizens to be protected from "any obsessed, vindictive, unscrupulous self-styled public saviour."

"Chief Justice Miller said ". . . the accused disobeyed a command contained in the Dental Association Act for which he was sentenced to pay a fine of $200" with a six month alternative jail term. "It is obvious that this was an act of disobedience to law under pain of punishment," Chief Justice Miller said. He acknowledged counsel's objection that the sovereign had not been named in the material before Judge Philp who heard the case as a new trial after it had been disposed of in provincial police court.

"In this case the proper style of cause should have been 'The Queen on the information of Walter Gordon Campbell'," the chief justice ruled.

"He said that until Parliament or the legislature had decided that "a private prosecution can, without the intervention of the sovereign, place a man's freedom in jeopardy

or make him subject to punishment I would not permit a departure from what I consider to be the correct practice of swearing the information in the name of the Queen.

"That is a safeguard of which the Queen's subjects should not be deprived. I am greatly concerned," he continued, "with this possibility that if we accept the argument of the informant (e.g. the dental association) we necessarily widen the field of prosecution of her Majesty's subjects to any obsessed, vindictive, unscrupulous self-styled public saviour."

"Her Majesty's subjects are entitled to freedom from unwarranted prosecution. They should not be called upon to defend themselves from unjustifiable charges at their own expense."

Periodontist Addresses Winnipeg Dentists

Bryan Wade of London, England, was the guest speaker when the Winnipeg Dental Society held its first meeting of the 1964-65 season at the Royal Alexandra Hotel, October 26. Dr. Wade is a consultant to the Royal Dental Hospital School of Dental Surgery, University of London.

With the assistance of coloured slides, Dr. Wade covered the field of pocket formation, techniques for eliminating simple pockets, and some of the complications which may arise in pocket elimination.

During the afternoon session Dr. Wade discussed briefly necrotizing ulcerative gingivitis, gingival contouring, and the significance of the occlusal relation. A few comments on the National Health Service in England concluded one of the better presentations members of the Winnipeg Dental Society have been privileged to hear in recent years.

The meeting was attended by a large group of Manitoba dentists and guests from Saskatchewan and Ontario.

Copeland Heads Northern Ontario Group

G. P. Copeland of Sudbury was elected president of the Northern Ontario Dental Association at the twenty-fourth annual convention of the N.O.D.A. in North Bay, September 11-13, 1964. Other executive officers are A. I. Timberg, Sault Ste. Marie, vice-president, and H. T. Donnelly, Sudbury, secretary-treasurer. The delegates chose Sudbury as the site of the 1965 convention.

Murchison is President of Eastern Ontario Dentists

A. C. Murchison of Ottawa was named president of the Eastern Ontario Dental Association when that group held its annual meeting at the Skyline Hotel, Brockville, September 27-29. Elected to the executive for 1964-65 were: J. Berman, past president; K. L. Hargadon, vice-president; and J. Thomas, secretary-treasurer, all of Ottawa.

Named to the advisory board of the Eastern Ontario Dental Association for 1964-65 were: F. M. Bliss of Brockville, J. C. Broom of Kingston, J. D. Lamping of Pembroke and F. C. Buschlen, Brig. K. M. Baird, D. L. Bigelow, W. C. Gallagher, D. J. O'Connor and A. Vachon of Ottawa. E. S. Macartney and C. E. Woods of Ottawa were named auditors.

Toronto Welcomes Alpha Omega Fraternity in December

Toronto will be the host city when Canadian and American Alpha Omega Fraternity delegates hold the Canadiana Cavalcade Convention at the Royal York Hotel, December 27-31, 1964. The scientific program will feature lectures by top Canadian dentists. Many interesting social events have been planned to be highlighted by the President's Reception and Ball and a New Year's Eve party.

F. G. Stulberg of Toronto is marshal for the event assisted by G. Perlmutter. Mrs. H. Leslie is convener for the ladies' program.

Further information may be obtained from F. G. Stulberg, 674 Kingston Road, Toronto 13, Ontario.

Recently elected members of the executive of the Newfoundland Dental Society are (seated l. to r.) R. V. Winsor, St. Johns, secretary; Kira Obrazcova-Candow, Corner Brook, past president; R. A. Downton, St. Johns, president; (standing l. to r.) D. A. Hollett, St. Johns, treasurer; W. H. J. O'Driscoll, St. Johns, first vice-president; K. Walsh, St. Johns, assistant secretary; and R. W. MacLeod, Corner Brook, second vice-president.

Newfoundland Society Meets in Corner Brook

The eleventh annual convention of the Newfoundland Dental Society was held this year in Corner Brook, September 11-12. Kira Obrazcova-Candow of Corner Brook presided at scientific, business and social functions. Attending the meeting with island dentists were C.D.A. President Rémy Langlois and Secretary-designate W. G. McIntosh. Other visitors included R. A. Connor, dental consultant, Department of National Health and Welfare, Ottawa, and D. M. Tanner, director of dental services, Department of Veterans' Affairs, Ottawa.

Clinical presentations were given: on endodontics — by D. C. Eaton, assistant professor of operative dentistry, Dalhousie University, Halifax; on tissue conditioning for full dentures — by Captain J. P. Jones, U. S. Air Force; on facial trauma — by Robert Butt, M.D., Corner Brook; and on oral cytology — by R. V. Winsor, St. John's. Motion pictures on dental topics and an address on estate planning rounded out the formal program.

Commenting on matters pertaining to their respective government departments, Doctors Connor and Tanner clarified the relationships between practising dentists and the provinces and the two federal dental agencies.

Dr. McIntosh gave a concise interpretation of the Hall Report (of the Royal Commission on Health Services). The concluding address was given at the President's Dinner on the final night of the convention by Dr. Langlois.

A steering committee on the Hall Report and a recruitment committee were set up by the provincial society. A request for fluoridation of all community water supplies throughout the province was reiterated. Gander and Harmon are the only two Newfoundland communities that fluoridate at present.

R. A. Downton of St. John's was elected president for 1964-65. He succeeds Dr. Obrazcova-Candow of Corner Brook. Others elected were: W. H. J. O'Driscoll, St. John's, first vice-president; R. W. MacLeod, Corner Brook, second vice-president; R. V. Winsor, St. John's, secretary; K. Walsh, St. John's, assistant secretary; and D. A. Hollett, St. John's, treasurer.

Dr. Downton was formally installed at the presidential dinner by E. P. Kavanaugh, St. John's. At this dinner, Dr. Langlois accepted a dressed caribou head on behalf of the Canadian Dental Association — a caribou being Newfoundland's provincial emblem. Commenting on the presentation ceremony, R. W. Ball, Grand Falls, reminded Dr. Langlois that the caribou was already a part of him since he had partaken of the animal at the 1963 convention dinner in Gander.

Canadian Dental Schools

Two New Appointments at Dalhousie

A. K. Das and E. S. Morrison have joined the dental faculty at Dalhousie University, Dean J. D. McLean has announced.

Dr. Das, formerly with the University of Illinois, has been appointed to the full-time staff as histopathologist. He is a graduate in dentistry from the University of Bombay, in medicine from the University of Calcutta, and obtained a master of science degree at the University of Illinois.

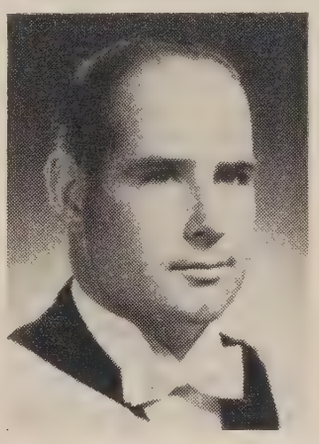
Dr. Morrison of Halifax, has joined the part-time staff. He is a 1958 graduate of Dalhousie's Faculty of Dentistry.

Six New Appointments at Manitoba

Six new staff appointments to Manitoba's Faculty of Dentistry have been announced by Dean J. W. Neilson.

Colin Dawes is associate professor of physiology. Dr. Dawes took B.D.S. and L.D.S. degrees from Manchester University in 1958 and earned a Ph.D. at Durham University in 1962. His special interests centre in the dental plaque and saliva composition.

Ian Hamilton, a 1960 M.S.A. graduate of the University of Toronto, is assistant professor of biochemistry. He earned a Ph.D. from the University of Wisconsin in 1963 and subsequently served as a National Research Council of Canada fellow in the Department of Biochemistry, Oxford University. His special interests include microbial carbohydrate metabolism and amino acid synthesis by oral bacteria.



Ian Hamilton

Lt.-Col. L. A. Richardson

Roland LaFlèche

Louise Pollard

Lt.-Col. L. A. Richardson, seconded from the Royal Canadian Dental Corps, is visiting professor to the Department of Prosthodontology and the School of Dental Hygiene. Lt.-Col. Richardson is responsible for teaching prosthetic duties to dental hygiene students. He has been with the faculty on a part-time basis since September 1962.

Roland LaFlèche is assistant professor of anatomy. He earned M.Sc. and D.M.D.

degrees in 1958 and 1963 at the University of Manitoba.

Louise Pollard is a part-time instructor in the School of Dental Hygiene. She received a B.A. from the University of Saskatchewan in 1961 and a diploma in dental hygiene from the University of Toronto in 1963. Miss Pollard practised in Edmonton and served as a part-time instructor at the School of Dental Hygiene, University of Alberta, prior to coming to Winnipeg.

W. G. Young is a teaching and research fellow in the oral pathology section. A 1961 graduate of Glasgow University, Dr. Young has practised in Edinburgh and Kampala, Uganda.

Manitoba Faculty Has 147 Students

One hundred and forty-seven dental students, dental hygiene students and students in graduate courses are registered in the Faculty of Dentistry, University of Manitoba, during session 1964-65.

The breakdown of registration is as follows: first dental year 32, second dental year 28, third dental year 25, fourth dental year 29, making a total of 114 dental students. There are 15 and 9 students respectively in first and second year dental hygiene classes. Graduate enrolments are: master of science in dentistry 4, doctor of philosophy 3. One post-doctoral student is taking further studies in biochemistry.

Kellogg Foundation Grant for Toronto Faculty

The W. K. Kellogg Foundation has made a grant of $92,800 toward a four year study in the Faculty of Dentistry, University of Toronto, designed to teach dental students the effective use of chairside assistants. The study is directed by C. E. Purdy, formerly commandant of the Royal Canadian Dental Corps School at Camp Borden.

Royal Canadian Dental Corps

Officers Attend Qualifying Course

Nine dental officers attended a captain to major qualifying course at the Royal Canadian Dental Corps School, Camp Borden, Ontario, September 14-October 23, 1964. They were: Capt. H. W. Brogan, R.C.A.F. Station, Greenwood, Nova Scotia; Capt. L. Dombowsky, R.C.A.F. Station, Chatham, New Brunswick; Capt. B. G. Johnston, Camp Gagetown, New Brunswick; Capt. R. J. Paturel, H.M.C.S. Shearwater, Dartmouth, Nova Scotia; Capt. J. G. Parent, R.C.A.F. Station, Goose Bay, Labrador; Capt. Y. Kamachi, Royal Canadian School of Military Engineering, Vedder Crossing, British Columbia; Capt. J. J. B. Houde, R.C.A.F. Station, Winnipeg; and Captains E. W. Gazo and P. P. Morin, both of No. 4 Field Dental Company, Germany.

Brigadier K. M. Baird, Director General of Dental Services for the Canadian Forces, visited Camp Borden on September 24 and interviewed the candidates.

Militia Officers Attend Casualty Care Course

Majors J. G. Blackmer, W. O. Mulligan, L. A. Cormier from No. 51 Dental Unit (M), Saint John, New Brunswick, and Maj. T. F. Gelley, No. 57 Dental Unit (M), Winnipeg, and Captains D. E. Bell, No. 54 Dental Unit (M), Ottawa, W. M. Godsoe, No. 56 Dental Unit (M), Toronto, and C. L. Gullekson, No. 60 Dental Unit (M), Edmonton, attended a casualty care course at the Royal Canadian Dental Corps School, Camp Borden, Ontario, September 14-18, 1964.

Efficiency Competition Awards

Trophies and scrolls have been awarded to the following Royal Canadian Dental

Brig. E. M. Wansbrough, former Director General of Dental Services for the Canadian Forces, (third from l.) is pictured with winners of Royal Canadian Dental Corps militia trophies (l. to r.): Capt. C. L. Gullekson, No. 60 Dental Unit; Lt.-Col. M. J. Snidal, No. 57 Dental Unit; Lt.-Col. J. D. McLean, No. 55 Dental Unit; Lt.-Col. T. W. LeSage, No. 54 Dental Unit; and Col. J. F. Edgecombe, Saint John, New Brunswick.

Corps Militia units competing in the General Efficiency Competition:

No. 57 Dental Unit, Winnipeg, commanded by Lt.-Col. M. J. Snidal, won the Moore Trophy for general efficiency;

No. 60 Dental Unit, Edmonton, commanded by Lt.-Col. S. G. Geldart, won the Trelford Trophy as runner-up in general efficiency.

No. 55 Dental Unit, London, commanded by Lt.-Col. J. D. McLean, won the Saskatchewan Dental Association Memorial Trophy as the most improved unit in general efficiency.

Lt-Col. Henry is President of R.C.D.C. Association

Lt.-Col. A. Z. Henry, Toronto, was elected president for 1964-65 when the Royal Canadian Dental Corps Association held its Sixteenth Annual Meeting at the Royal Canadian Dental Corps School, Camp Borden, Ontario, September 17-18, 1964. Named as officers were: Lt.-Col. M. J. Snidal, Winnipeg, president-elect; Lt.-Col. A. J. Harris, London, first vice president; Lt.-Col. J. E. Hallett, Halifax, second vice president; Col. C. E. Woods, Ottawa, treasurer; and Col. C. B. H. Climo, Ottawa, secretary.

The immediate past president is Lt.-Col. G. L. Ramsay, Saint John, New Brunswick. Col. J. F. Edgecombe, Colonel Commandant, and Brig. E. M. Wansbrough, former Director General of Dental Services for the Canadian Forces, also attended the meeting.

Economics

Hall Commission Projects Dentists' Income

The Royal Commission on Health Services projects that, if there is no change in the existing programs for dental care, the average gross income of dentists will be $32,560 in 1971. Net income is expected to rise to $17,908. If the expanded public dental care program recommended by the Commission is implemented, the Commission assumes that there will be a greater demand for services of dentists and, therefore, their gross incomes will rise at a greater rate. The Commission estimates

1971 gross income of dentists at $34,010 and net income at $18,705.

Costs of Royal Commission Proposals in Dispute

The November issue of the Journal carried an editorial comment from the *Canadian Tax Journal* on the repercussions of implementing recommendations of the Royal Commission on Health Services as well as other measures in the fields of education and pensions. The author of this comment also tried to transpose future costs of the proposed universal health care program to today's conditions. He postulated, as a result, that substantial tax increases would be required to pay for the program if it were in effect today. This, in turn, brought quick response from Mr. Justice E. M. Hall, former chairman of the Royal Commission on Health Services. In his view, the justice observed, the *Canadian Tax Journal* article had exaggerated the cost of the program. He added that the Foundation had indulged in an academic exercise by calculating what the health care program would have cost, had it been in existence in 1963, whereas the Commission had advocated gradual implementation over the next seven years with estimates of what the fully implemented program would cost by 1971.

Further comment on this exchange has since appeared in the October 10 issue of the *Canadian Medical Association Journal* which observes that:

"Unfortunately it is only by an academic exercise that we can try to measure the impact of non-existent programs. We might respectfully suggest that the projections which the Commission has made indicating that "the shift from the private to the public sector will not be as earth-shaking as suggested" are themselves the result of an academic exercise. While their expectations of employment levels and Gross National Product increases do seem reasonable to attain, the report does not take into consideration the impact of the Canada Pension Plan, the substantial tax allocations which may be required for education, or the frequent tendency for an existing governmental responsibility to increase in cost much faster than the normal expected increment.

"Mr. Hall's remarks do not alter the basic problem. The recommendations of the report cannot be implemented without an increase in cost. Whether we review the problem in the context of 1961 or 1971, we, as Canadian citizens and taxpayers, must decide on a priority basis just how this money should be spent."

B.C. Corporation Enrols Participating Dentists

News from the west coast is that the Dental Services Association of British Columbia seeks to enrol an employee group in the Vancouver area for participation in a pilot plan of prepaid dental care. Concurrently DSABC is enrolling 'participating dentists' to provide services under the plan. To be eligible as a participating dentist the applicant must be a member in good standing of the College of Dental Surgeons of British Columbia and be acceptable as a member to the board of directors of DSABC.

B.C. Corporation Outlines Dental Plan

Dental Services Association of British Columbia has announced specifications for a pilot prepaid dental care plan being offered potential purchasers. The plan features patients' choice of dentist, first dollar coverage (no deductibles), and treatment of pre-existing conditons. Rates are predicated on census data to be supplied by the employer or group desiring dental coverage. These rates take into consideration the ages of employees, sex composition of the group, occupation and earnings, rate of employee turnover, family distribution, and number of children.

All eligible employees and their dependants must be included in the plan. DSABC recommends that the employer or group purchase a plan that will pay 50 per cent or more of the cost of dental care outlined in its list of benefits. The employer or group will pay the full premium for the plan. The employee will be responsible for paying the co-

insured portion of the dentist's bill (50 per cent or less) directly to the dentist at the time treatment is rendered. Employees may elect to receive treatment outside of the scope of the benefits of the plan, in which case they pay the difference between the cost of allowed care and the cost of treatment they elect to receive.

The DSABC plan includes the following benefits:

Diagnosis — including examinations and consultations, radiology and pathological reports, one series of full-mouth radiographs every three years;

Preventive therapy — two prophylaxes per year, one topical fluoride application per year, space maintainers when placed primarily to maintain space and not for orthodontic purposes;

Oral surgery — extractions and other oral surgical procedures including pre- and postoperative care;

Restorative dentistry — all necessary procedures to restore natural teeth to normal function; amalgam, silicate and plastic restorations;

Endodontics — necessary procedures for treatment of teeth with pulp involvement;

Periodontics — necessary procedures for treatment of diseases of the soft tissue and bone surrounding and supporting the teeth;

Prosthodontics — removal partial dentures and complete dentures, 'jumps,' relining, repairs and adjustments. Prosthetic appliances will be provided once only every five years. Excluded is the replacement of an existing denture which is satisfactory or which can be made satisfactory.

Emergency dental treatment provided outside British Columbia will be paid for if rendered by a qualified, licensed dentist.

The plan does not pay for gold restorations, crowns and bridges, orthodontic services, cosmetic services, or charges for broken appointments.

A table of allowances, that parallels the British Columbia Dental Association's fee guide, permits fees to dentists that will assure high quality care. Provision for extra billing is also included to accommodate the dentist with advanced education or greater skill.

Toronto Liberals Favour National Health Scheme

Rank and file Liberals in Metropolitan Toronto will likely support a publicly financed, Canada-wide health program as outlined by the Hall Commission, Toronto's *Globe and Mail* reported on October 20. This conclusion is based on preliminary results of surveys and discussions conducted by Liberal associations in 28 of 31 Metropolitan Toronto ridings — part of a plan to feed neighbourhood Liberal opinion to party policy makers. Only three discussion groups reported back to party headquarters, but the results were so decisive that officials felt that they indicate the trend throughout the Toronto area.

Eighty-five per cent of respondents believed Canada could afford the Hall Commission's program. Eighty-two per cent approved government operation and increased taxation to set the scheme in motion. Seventy-six per cent condemned present methods of paying for health services, labelling these as inadequate.

Dominion Life Offers Dental Insurance

Dominion Life Assurance Company, Waterloo, is entering the dental insurance field. A company brochure describes the plan. There is a $25 deductible applicable to each covered individual in each calendar year. Not more than $100 will be charged as a family deductible amount for any employee and his dependants in any calendar year. The maximum benefit payable in any one calendar year is $500 for any individual. The lifetime maximum for any individual is $5,000.

Covered services include inlays, crowns, bridges, orthodontic treatment, restora-

tions, dentures, oral surgery, periodontal care, endodontic therapy, prophylaxes, radiography and routine examinations. Charges for denture replacements are not covered during the first year of insurance or within five years after the last replacement for which benefits were payable.

The insurance "covers all reasonable and customary charges incurred by an employee and his family for those dental services deemed necessary by, and provided by, a legally licensed dentist," but does not cover "charge in excess of those considered reasonable and customary in accordance with the local fee schedule."

Fluoridation

Edmonton Loses Fluoridation Battle

A vigorous campaign by Edmonton pro-fluoridation forces failed to win the necessary two-thirds majority required in Alberta plebiscites. Final tabulation showed 65.04 per cent of the votes in favour of fluoridation but a 66 2/3 per cent majority is required. The October 14, 1964 vote was the fourth on fluoridation in Edmonton in seven years and produced the greatest majority for fluoridation, but still not sufficient.

Fluoridation Comes to Baffin Island

The water supply of Frobisher Bay on the coast of Baffin Island has been fluoridated since May 5, 1964, *Health,* official publication of the Health League of Canada, reported recently.

Thus the people of this northern community will receive the benefits of better dental health while arguments prevent similar safeguards for their fellow Canadians in cities such as Edmonton, Montreal, Ottawa, Regina and Vancouver, as well as the whole province of New Brunswick.

New Zealand Judicial Ruling Upholds Fluoridation

The following British Privy Council judgement in a New Zealand action, reported in the August 25 *All-England Law Reports,* (page 179), categorically rejects the notion that fluoridation impairs the 'purity' of water:

"ATTORNEY-GENERAL for New Zealand (on the relation of LEWIS and ELLIOT) v. LOWER HUTT CORPORATION.

"(Privy Council [Viscount Radcliffe, Lord Morris of Borth-y-Gest, Lord Pearce, Lord Upjohn and Lord Donovan] June 8, 9, 10, July 22, 1964)

"The water of Lower Hutt [New Zealand] is no doubt pure in its natural state, but it is very deficient in one of the natural constituents normally to be found in water in most parts of the world. The addition of fluorides adds no impurity and the water remains not only water but pure water and it becomes a greatly improved and still natural water containing no foreign elements."

Public Health

Winnipeg-Manitoba DPH Conference

Dental public health programs, endodontic treatment, dental hygienists' activities, and social service problems were among the topics featured on the agenda of a joint staff conference held in Winnipeg by 30 dentists from Manitoba and Winnipeg City dental services, September 1-2.

On the first day Winnipeg representatives outlined the city's dental program, describing treatment policy, school dental inspection, dental health education and dental problems encountered in the Winnipeg General Hospital out-patient department. In a formal paper, B. A. Hincks,

Attending a Manitoba-Winnipeg dental public health staff conference, September 1-2, were (seated l. to r.) O. Franklin; L. N. Konyk, Winnipeg dental director; B. A. Hink; C. H. McCormick, Manitoba dental director; and T. Marn; (standing l. to r.) E. Ryback; J. Dziadek; H. Stone; S. J. Fuzy; and C. G. Shapera.

Winnipeg, contrasted older and newer methods of pulp exposure management in deciduous teeth. Mrs. Katharine Peschel, staff dental hygienist, Manitoba Dental Services, reported on the first national meeting of the Canadian Dental Hygienists' Association held in conjunction with the C.D.A. national convention at Edmonton. Other speakers described sterilization techniques and problems encountered by social workers participating in a multi-family service project concerned with rehabilitation of families receiving welfare assistance.

On September 2 provincial representatives described regional dental programs in the province. Provincial dental director C. H. McCormick then introduced a new manual for dental services and outlined some projected provincial dental activities for the coming year.

"Manner of speaking," a film distributed by the Manitoba Telephone Company, introduced a discussion of educational techniques and materials available from the Manitoba health department. A tour of the provincial environmental hygiene laboratory rounded out the two-day meeting.

Awards and Honours

Two Halifax, Nova Scotia, dentists were recently elected officers of the International College of Dentists. **J. P. McGuigan** was named president-elect and **G. M. Dewis** regent.

Don W. Gullett, secretary of the Canadian Dental Association, received a distinguished service award from the American Association of Dental Editors at San Francisco, November 6.

H. K. Brown, former dental consultant to the Department of National Health and Welfare, now on the staff of the new dental school at the University of British Columbia, Vancouver, was awarded an honorary life membership by the Ontario Public Health Association October 27 in recognition of his outstanding contributions to public health.

A. A. B. Kenney, a practising dentist in Maple Creek, Saskatchewan, since the end of World War I, was honoured by the local Chamber of Commerce at a luncheon on September 23. Dr. Kenney recently retired.

letters • courrier

The Journal devotes this section to comments by readers on topics of current interest to dentistry. The editor reserves the right to edit all communications to fit available space and requires that all letters be signed. Printed communications do not necessarily reflect the opinion or official policy of the Canadian Dental Association. Your participation in this section is invited.

■

Cette partie du Journal est consacrée aux communications des lecteurs sur les questions d'actualité dentaire. La rédaction se réserve le droit d'adapter les communications à l'espace disponible. Toute communication doit être signée. Les communications publiées ne représentent pas forcément l'opinion ou la politique officielle de l'Association dentaire canadienne. Vous êtes invités à participer dans cette section du Journal.

L'eau fluorée sans intervention humaine
Naturally fluoridated Water in Canada

M. le rédacteur:

Me serait-il permis d'attirer votre attention sur un petit article paru dans le *Journal de l'A.D.C.* (août 1964, p. 532) et intitulé: "Un quart de million de citoyens du Canada jouissent des bienfaits de l'eau fluorée naturellement."

Deux points semblent discutables dans cette nouvelle:

1. On y parle d'eau fluorée 'naturellement' et 'artificiellement.' Ces expressions m'inquiètent car elles donnent l'impression que la fluoration 'contrôlée' ou 'surveillée' est 'artificielle.' On peut dire de l'eau fluorée 'naturellement' qu'elle est fluorée 'sans intervention humaine.'

2. "Seulement quatre provinces, Alberta, Saskatchewan, Manitoba et Ontario (il vaudrait mieux dire l'Alberta, la Saskatchewan, etc.) ont de l'eau qui contient du fluor à l'état naturel."

L'on note là une légère déformation de la vérité. L'on ne peut affirmer que seules ces provinces ont de l'eau fluorée sans intervention humaine, car l'analyse de l'eau n'a été faite que sporadiquement dans les autres provinces. Il est fort possible, et même probable, que l'on trouverait de l'eau fluorée si une telle analyse était pratiquée.

Vous comprenez, cher docteur, que ces remarques sont passées dans un but purement constructif et ne visent qu'à l'amélioration de la qualité du Journal qui est déjà fort bonne.

Paul Simard, D.D.S.
8 rue Bellevue, Lévis, P. Qué.

(N. de la R.) *(1) Les expressions "eau fluorée naturellement" et "eau fluorée artificiellement" sont utilisées couramment dans le langage scientifique. Par exemple, dans* Médecine et Hygiène *(p. 645, no 649, 30 juillet 1954), A.-J. Held (Genève), dans un article intitulé "Fluor et carie dentaire" emploie à plusieurs reprises ces expressions. (2) Il faut sous-entendre ici que seules quatre provinces, où l'eau a été analysée, ont de l'eau qui contient du fluor à l'état naturel.*

The item to which Dr. Simard refers was also published in English (Quarter million have natural fluorides) on p. 455 of the July 1964 Journal. Dr. Simard questions that only Alberta, Saskatchewan, Manitoba and Ontario possess significant naturally fluoridated waters. He suggests that water analyses may only be made sporadically in other provinces. Further analyses, he maintains, may disclose additional naturally fluoridated waters in the other six provinces. Because this news item was based on information derived from the Health League of Canada, Mr. L. H. Bowen of the Health League was invited to comment. (Ed.)

To the Editor:

In 1963 a survey was undertaken by the Health League of Canada, with the aid of provincial departments concerned, to determine the population in each province receiving at least minimum fluoride protection through naturally occurring water-borne fluorides.

For this purpose, all provincial departments of health were requested to show if they had any significant population living in such areas in their province where the water contained a minimum of 0.7 ppm of fluoride.

Results of the survey were issued on May 1, 1964, showing only four provinces having any significant population in such areas, with a total of almost a quarter million people benefitting.

It is of interest to note that the heaviest concentration of this fluoride protection in Canada appears to lie west of a line drawn north from Hamilton, Ontario, to Georgian Bay. It extends over southwest Ontario and

parts of Manitoba, Saskatchewan and Alberta and seems to end east of the Rockies.

Since that date, Newfoundland has reported one such community of 2,000, St. Lawrence, in the Burin Peninsula on the South Coast.

L. H. Bowen,
Executive Secretary,
National Fluoridation Committee,
Health League of Canada.

Approbation de l'intégration du français dans le Journal

M. le rédacteur:

Les membres de la Société dentaire de la Rive Sud, réunis en congrès les 11, 12 et 13 septembre derniers à Rivière-du-Loup, tiennent à vous exprimer leurs félicitations pour la rédaction du *Journal de l'Association dentaire canadienne* et de l'intégration du français dans le Journal. Ceci, est une amélioration sensible et démontre la grande collaboration existante entre les deux groupes ethniques au sein de l'Association dentaire canadienne.

Paul Lafrance, D.D.S.,
340 Lafontaine, Rivière-du-Loup, P. Qué.

Instant Dowel Crown for Cantilever Bridge

To the Editor:

A lady came to my office with a cantilever bridge in her hand, early one Tuesday morning. The bridge comprised a three-quarter crown on the upper left second bicuspid holding a first bicuspid pontic. The coronal portion of the second bicuspid had broken away with the three-quarter crown, leaving the root. Needless to say, the patient was unhappy about the cramping of her smile and she insisted that I make a restoration by Wednesday evening because she was leaving Ottawa for Malaya at 7.15 a.m. on Thursday.

The bridge had been made just before her marriage, 23 years earlier. The periodontal tissues were unaffected by the load which the bicuspid had borne for that period of time. This justified the quickest restoration — a new cantilever bridge attached, this time, to a dowel crown.

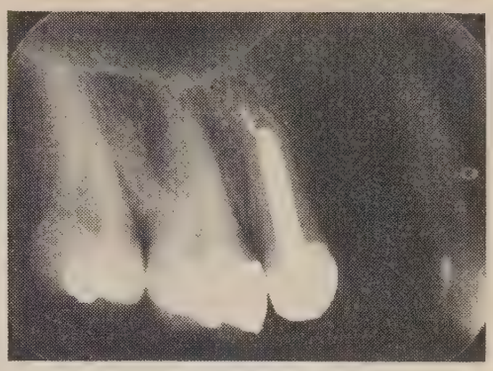


FIGURE 1

FIGURE 2

The second bicuspid root was anaesthetized and the root canal was immediately filed, irrigated and filled apically. A preparation for a dowel was made in the unfilled portion of the canal and a wax impression made. By evening the dowel and coping were cast and cemented into position (Figure 1).

The coronal portion of the coping was then prepared to receive a full crown with a labial shoulder. A compound impression in a copper band was made of this dowel and coping preparation together with an over-all plaster impression of the adjacent teeth and tissue. The bridge was completed and cemented into place late on Wednesday afternoon (Figure 2).

Lionel Metrick, D.D.S.,
75 Albert Street, Ottawa 4, Ontario.

Work Simplification in Dental Practice

H. C. Kilpatrick. Philadelphia and London, W. B. Saunders Co., 1964. (Available from McAinsh & Co. Ltd., Toronto) 512 p. Illus. $21.60

Work simplification is defined by the author as a shorter and easier way to practise dentistry. This does not mean hurried work. It implies a reduction of stress, not a saving of time. When both patient and dentist are relaxed, the work becomes easier and is accomplished almost automatically in a shorter period of time. Tension can be lessened by the application of principles of stress reduction, motion economy, human understanding and plain common sense.

The information in this book is of great value to the dentist, dental assistant, receptionist, and dental student. The book defines the fundamentals of work simplification and shows how these principles may be applied to many phases of dental practice: general practice, surgery, endodontics, periodontics. The chapters are arranged so that the reader can learn how to study and interpret work patterns in all phases of dentistry, and design and decorate the office for efficient office flow. Equipment is evaluated quite fairly. It is surprising to find the variety available because we are accustomed to consider only two or three types as a rule. Training programs for auxiliary personnel are also suggested.

The recent graduate who has not yet developed inefficient work habits will benefit greatly from the author's experience. The established practitioner will have an inherent resistance to change his work pattern. This reviewer has practised 'à la Kilpatrick' for two years and finds it most rewarding in every respect. The chapters on equipment are particularly interesting to the practitioner who is contemplating changes in his office. Many restorative procedures, with or without chairside assistant, are explained and abundantly illustrated. The author and his contributors are competent and sincere individuals who constantly endeavour to simplify and improve our professional working habits. Every practising dentist and his personnel should have an opportunity to be exposed to this textbook. To our knowledge, no other book covers the field so thoroughly, and in such simple and understandable language.

Ce livre sur la simplification du travail en art dentaire est écrit dans un langage simple et facile à comprendre. Il est pourvu d'abondantes illustrations qui, souvent, sont assez claires (self-evident) pour ne pas requérir la compréhension du texte. Les principes de temps et mouvements sont adaptés par l'auteur pour simplifier le travail du dentiste. Pour accomplir plus de travail, il ne s'agit pas de se presser davantage, mais d'organiser notre bureau, notre équipement et notre technique de façon à rendre notre travail et notre journée plus simples, moins fatiguants. Le dentiste en rendant son travail plus facile réduit sa propre tension nerveuse, et par le fait même celle de son patient.

L'auteur discute l'application de ces principes pour le dentiste en pratique générale, le chirurgien, le périodontiste, l'endodontiste. Même un directeur de clinique dentaire y trouvera un chapitre qui lui est réservé. Les chapitres sont agencés de telle sorte que le lecteur, familiarisé avec la simplification du travail, apprends à décorer et à organiser son cabinet en alliant l'esthétique et le fonctionel. La première réaction du praticien sera de résister à ces idées 'nouvelles,' mais s'il en applique quelques unes, il réalisera vite les bénéfices qui en découlent. Nous sommes familiers avec ces principes et les pratiquons avec fruit.

L'auteur nous familiarise avec les nombreux équipements et manufacturiers qui s'orientent dans ce sens. Il y explique aussi des programmes d'entraînement pour assistantes. Les 'nouveaux dentistes' y trouveront une mine inépuisable d'informations, car ils n'ont pas encore acquis d'habitudes fatigantes et non-efficaces. Plusieurs techniques de travail avec ou sans assistante, sont clairement expliquées.

Le Dr Kilpatrick et ses associés nous donnent un livre simple, sérieux, et plein de bon sens commun. Chaque dentiste canadien devrait se faire un devoir de lire ce livre afin d'augmenter son rendement en se dépêchant moins.

Marcel Hébert

Orthopédie dento-faciale

Michel Chateau. Paris, Julien Prélat, 1964. 511 p. Illustré. Frs. 58.

Cet excellent livre qui s'adresse aux étudiants des Ecoles Dentaires et aux praticiens non-spécialisés qui désirent mettre à jour leurs idées sur l'orthodontie se divise en trois parties.

Dans la première partie, l'auteur qui est médecin avant tout, expose brièvement, sans recherches de termes techniques ni abus de discussion le développement cranio-facial dentaire; les éléments de physiologie intéressant l'orthodontie et la terminologie orthodontique.

Cette première partie du livre qui résume en 70 pages de texte, toutes les connaissances actuelles concernant la croissance, la dentition, l'anatomie et la physiologie dento-faciales est une véritable encyclopédie où peuvent puiser tous ceux qui n'ont pas le courage de consulter les gros volumes qui ne sont pas toujours très clairs et qui s'éloignent souvent du sujet à traiter.

La deuxième partie du livre est consacrée au diagnostic; examen de la face et de la bouche; diagnostic positif et différentiel des syndromes morphologiques locaux; diagnostic étiologique et pathogénique; diagnostic synthétique et éléments de pronostic. Ce chapitre qui montre au praticien non-spécialisé comment établir un diagnostic et à reconnaître les dysmorphoses qu'il peut traiter ou qu'il ne doit pas traiter est certainement la partie la plus originale de ce livre car il renferme des données que l'on ne peut trouver ailleurs.

Les bases du diagnostic étant établies, l'auteur passe ensuite à l'étude des différentes thérapeutiques employées en orthodontie et termine par une étude approfondie de la thérapeutique mécanique et la contention.

Le lecteur trouvera dans ce livre de nombreuses références qui parsemées au cours du texte lui permettront, mieux qu'une bibliographie groupée, d'approfondir certains points qui lui sont obscurs.

Ce livre d'une très belle présentation aura certainement un grand succès. Nous avons pris grand plaisir à le lire et nous le recommandons à ceux qui s'intéressent aux grands problèmes de l'orthodontie.

This excellent book, which was written for the undergraduate student who intends to enter general practice and for the dentist who wants to increase his knowledge of orthodontics, is divided into three sections.

The first section is devoted to growth, cranio-facial and dental development, elements of physiology related to orthodontics, and terminology.

The second section is devoted to diagnosis: examination of the face and mouth; differential diagnosis of local morphological syndromes; aetiological and pathogenic diagnosis; synthetic diagnosis and elements of prognosis. The chapter on diagnosis is extremely interesting and very well done. Orthodontists will find pleasure and profit in reading it.

The third section of the book is devoted to therapy and retention. This portion is arranged for ready clinical reference. It presents the treatment of clinical problems as well as many detailed chapters on orthodontic techniques, materials and instruments.

In addition to the many references cited there are also suggested reading lists for those who want to know more about certain subjects.

As a text, this book is scientifically valid and is presented in a clear, understandable manner. The photographs and line drawings are excellent, and the editing and printing are of high calibre.

This volume, though written in French, will prove of assistance to the general practitioner and student alike.

Paul Geoffrion

Ligatures, Splints, Bite Planes and Pyramids

Abraham Berliner. Philadelphia and Montreal, J. B. Lippincott Company, 1964. 180 p. Illus. $13.00

This author is the first to discuss so completely the problems involved in tooth migration, functional repositioning, and provisional splinting as it applies to periodontics.

The first three chapters are devoted to examination, diagnosis, treatment plan, and some pathological and physiological background. The remainder of the book concerns itself with the various procedures of tooth movement and stabilization of periodontally involved teeth. Each procedure is handled from a diagnostic, from a mechanical and from a therapeutic approach.

The techniques used are carefully described. Although there may be differences of opinion regarding these techniques, one cannot help but be impressed by the well organized, logical and detailed sequence of the procedures. All the methods are profusely illustrated in great detail.

Dr. Berliner is to be complimented on this book. This reviewer recommends it as a good reference and teaching manual.

H. B. Squires.

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